THE AUTOMOBILE

VOL. XIV. NEW YORK—THURSDAY, MAY 24, 1906—CHICAGO No. 21

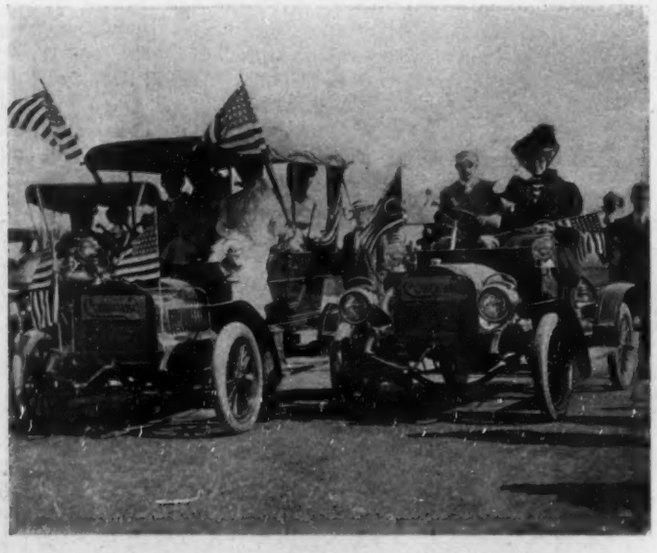
THE SPEED PARADE OF THE LONG ISLANDERS

EXACTLY how it all happened stories differ much, but the fact remains that the 1906 parade of the Long Island Automobile Club, held Saturday afternoon, May 19, resolved itself with startling unanimity into a wild rush for the sea when the cavalcade reached the tempting Coney Island Boulevard. According to the Brooklyn *Eagle* the driver of a blue car started the rout of the 140 cars, the greater part of which indulged in the scramble for Coney's wave-washed strand.

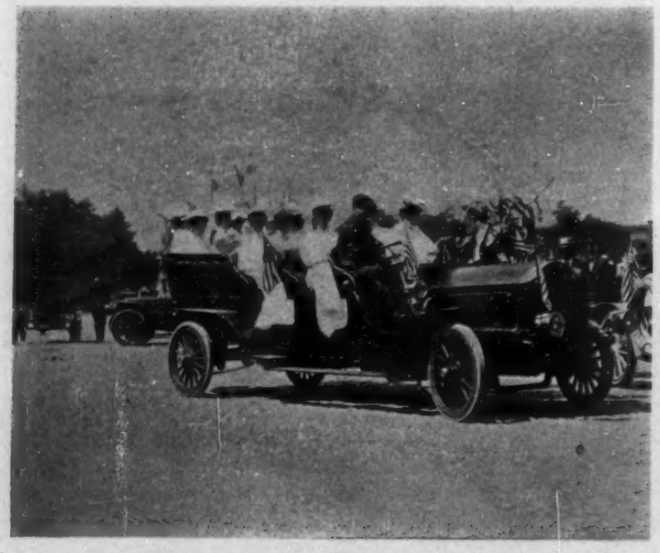
The assemblage took place at the Park Plaza in Brooklyn Borough. Charles Jerome Edwards figured as the grand marshal, and behind him came Dr. W. T. Richardson, the chairman of the special committee having the parade in charge, with President

HOW THE ASSEMBLED CARS AT PARK PLAZA LOOKED FROM THE TOP OF THE MEMORIAL ARCH.

A LOCOMOBILE PARTICIPANT OF THE SPEED PARADE.



TWO COMPOUND CARS DRESSED FOR THE OCCASION.

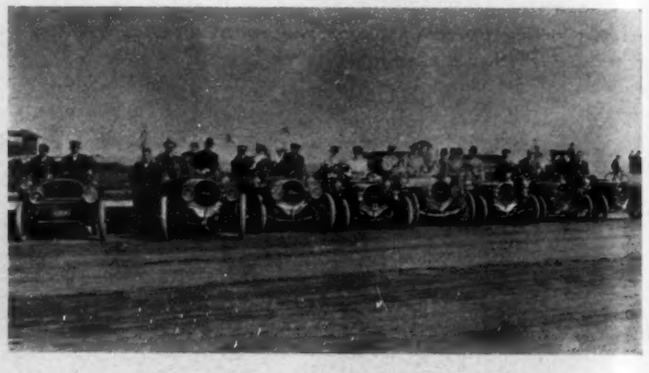


THE VIOLA BOWLING CLUB IN THE BIG 'BUS.

Alfred Wilmarth alongside in another car. Both autos were gay with bunting, and the doctor's car contained two buglers, who blatantly told of the coming of the Long Islanders and their guests.

It was an orderly procession that started down Eastern Parkway and into Bedford avenue, the route thence covering various streets and finally leading to the west driveway of Prospect Park. At the head of the motorcycle police were supplying a pace that must have been a bit faster than eight miles an hour, and going through the park it is not improbable that many, owing to the lively clip, failed to appreciate its beauty. It was at the beginning of the Coney Island Boulevard, after the exit from the park, that the blue car began the trouble. Grand Marshal Edwards tried to stem the tide, but it was a useless attempt, for the fever spread on the high speed, and in a moment they were off for the sea. One might as well have tried to stop the fall of Niagara as to have blocked the whirling paraders. Though only 141 cars started, a dazed policeman statistically gave a total that was more than trebled.

There was to have been some prize giving before the disbandment at Coney Island, but the unannounced race greatly disturbed the plans of the committee. A prize for the largest number of cars of a particular make probably belonged to the Cadillacs, over thirty of this kind being in line. The Royal Tourists claimed twenty-two machines, and there were many Autocars, Franklins and Whites; in fact, all the prominent makes and many



A GOODLY LINE-UP OF AIR-COOLED FRANKLINS.

of lesser importance were on view. A brand new vehicle was a steam runabout built by C. A. Ball, a Brooklynite, who constructed it for his own pleasure. It possessed a four-cylinder compound engine with a flash boiler, and it is claimed that it can burn either kerosene or gasoline.

Of the decorated machines, the Cadillac of Mr. Edwards, the Royal Tourist of Dr. Richardson, President Wilmarth's similar car and the Autocar of M. G. Wolfe were eligible for prize competition. A feature of the parade was the big Mack 'bus, which contained fourteen women members of the Viola Bowling Club, all of whom were garbed in white, with violets used for contrast. The Columbia of N. W. Curtis, with the women of the party also dressed in white, presented an attractive picture, with a decorative scheme that combined wistaria, white lilacs and carnations, and lavender ribbons.

The Franklin exhibit included a 1902 model of the four-cylinder type, said to be the first built in this country, and having to its credit an 85,000 mileage.

Though things did not come out exactly as the committee desired, the 1906 parade of the Long Island Automobile Club will be long remembered, especially the race which it supplied down the Coney Island Boulevard. Formed in 1900, with such veterans as A. R. Pardington and Frank G. Webb at the helm, the Long Island Club has grown until it now figures among the largest in the country and possesses a clubhouse and garage at 360 Cumberland street, Brooklyn, which it is outgrowing with rapid strides. The club has been prominent in A. A. A. matters and

helped to bring about the organization of the national body. As a member of the New York State Association the club has been very active in Albany legislative matters. A misunderstanding among some of the leaders in reference to the Stanley bill caused a story to the effect that several of the old timers intended to resign and bring forth another club. Explanations and conferences have about smoothed the strained situation, and indications now are that the Long Islanders will hardly care to put themselves in the position of antagonism to all the other New York state clubs. The impression now generally prevails that though the Stanley bill contained some excellent ideas, it were better to leave things as they are for another year.

THE PARADE OF THE JERSEYMEN.

The Automobile Club of Hudson County, Saturday last, held its annual parade in a most successful manner, over 200 automobiles, many of them handsomely decorated, parading the Hudson County Boulevard from Montgomery street, Jersey City, to Bergen Point, a distance of eight miles. Thousands of people saw the spectacle, which was in charge of President J. A. Edwards, Henry Louderbough, J. V. Z. Anthony and Frank Whitney. At Bergen Point the members of the club and their guests were entertained at luncheon. Unlike the Brooklyn event, there was no scorching, and none attempted to run ahead of the band wagon.

The Automobile Club of Hudson County is in a most prosperous condition, having increased in numbers until it is now beyond

A FORMIDABLE STRING OF WHITE STEAM CARS.

the one-hundred mark. Recently it has been doing some energetic work in connection with discouraging speeding on the Hudson County Boulevard, a matter that had become a source of great complaint to other users of the boulevard.

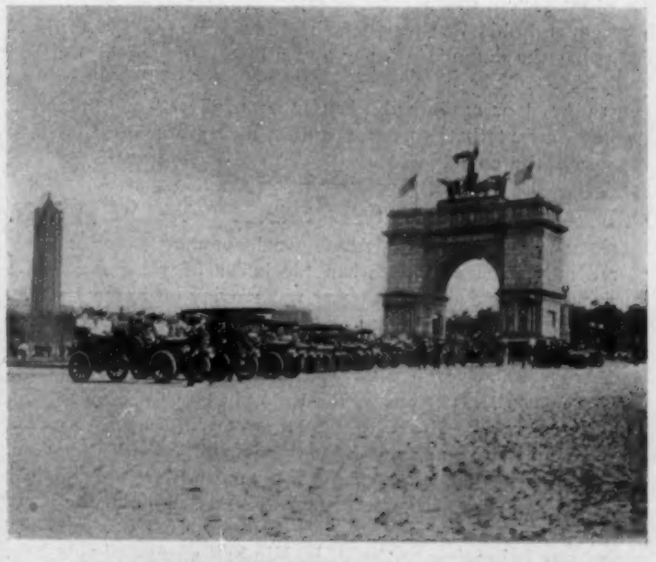
PHILADELPHIA'S TWO-TAG NUISANCE.

PHILADELPHIA, May 21.—The much-abused Quaker automobilists do not propose to suffer silently under the inconvenience—not to mention the expense—imposed upon them as a result of the recent ruling of the Pennsylvania Supreme Court requiring them to decorate their vehicles with a city tag in addition to that issued by the State. They propose to make an effort to induce the City Councils to so amend the municipal ordinance as to make the exhibition of a city tag unnecessary when a State tag is carried—this because of the clause in the State law which makes it illegal to carry any but a State tag on one's machine.

Last week President Dick, of the Automobile Club of Philadelphia; Robert P. Hooper, treasurer of the Automobile Club of Germantown, and other prominent officials of the two local clubs, had many Councils members out in their cars for the purpose of demonstrating the absurdity of strictly enforcing the tag requirement of both city and State. Roads were selected which crossed the line between Philadelphia and Montgomery counties, and the rapid changes necessary to keep within the law were laughable. It is certain that the proposed ordinance will be adopted next week.

THE CONEY ISLAND BOULEVARD WAS TEMPTING.

A QUARTETTE: RICHARDSON, PIERSON, EDWARDS, WILMARTH



THE MEMORIAL ARCH AT PROSPECT PARK ENTRANCE.

HOLDS OWNER IF IN AUTO.

BOSTON, May 21.—A decision of great importance to owners of automobiles in Massachusetts has been handed down by the full bench of the Supreme Court. It is in effect that whoever participates in the overspeeding of an automobile is liable criminally, the court holding that if the owner or anyone having control of a car knows and allows it to run illegally he is equally liable with the chauffeur.

The decision was made on the test case of the Commonwealth against Roland H. Sherman. Mr. Sherman is a lawyer and the son of Judge Sherman, of the Superior Court, and the case is the outgrowth of his arrest in Leicester for driving his car more than twelve miles an hour, the limit allowed in that town. He was found guilty in the Worcester District Court and appealed his case. In the Superior Court Mr. Sherman was found guilty by a jury, but he contended that he could not be convicted on the proof submitted, and appealed his case to the Supreme Court for a determination of the law. It was agreed that the automobile was registered with the Massachusetts Highway Commission by Mr. Sherman and in his own name; that he was in the automobile, which was going in excess of twelve miles an hour, the maximum speed permitted by the Leicester town by-laws; and that he was one of five people in the car, was not himself operating it, but was seated in the tonneau.

The court holds that the proof was sufficient. It says the automobile was registered with the Massachusetts Highway Commission by the defendant, and in his own name, warranting a finding that he was the general owner of it or that he had a special property therein which gave him control thereof. Under the statutes automobiles shall be registered by the owner or person in control thereof. The court holds that if he is guilty here, he is not guilty as owner but because the evidence warranted the jury in finding as a fact that he participated in the machine's being run at an illegal speed. The court says the offense with which he stands charged is a misdemeanor and not a felony, not being punishable by imprisonment. If it be material, the court says it is settled that in misdemeanors there are no degrees, but that all who participate in the commission of the offense are principals, and may be charged as such. The court holds that the Commonwealth made out a *prima facie* case of participating by the defendant in the machine's being run at an illegal speed, by showing that the machine was being run by the operator at an illegal speed, while the defendant, being either the general owner of the machine or having a special property in it that gave him the right to control it, was in the tonneau. The court holds further that the facts warranted the inference that the defendant knew and allowed his machine to be run illegally. The case is a *prima facie* case only, and may be contradicted or explained. But uncontradicted or explained, it does warrant that inference and so makes out a *prima facie* case, says the court.

INSPECTOR CRITICISED SAFETY VALVE PLAN.

OMAHA, NEB., May 21.—An unusual automobile accident occurred at Omaha recently when the boiler of a Stanley steam touring car exploded while the car was moving on Farnam street, near Central boulevard. The detonation was terrific, and was heard for more than a mile. Windows in the immediate vicinity were broken, and parts of the machine were found three blocks away. Of the six persons in the car only two were more than nominally injured—H. A. Perkins, commercial agent for the Rock Island railroad at Omaha, and the chauffeur, R. C. Forberd. The other occupants, two men and two women, were only slightly bruised. The time of the accident was 10:25 at night, the party being on the way home from the Field Club. The car was a rented one belonging to the R. R. Kimball garage of this city. The boiler head was blown out, but the cylinders were not ruptured. The boiler in the Stanley steamers is well forward and the force of the concussion was away from the car. This accounts for the light injury to the occupants. Mr. Perkins and the chauffeur were hurled some distance, alighting on their hands and knees. They were bruised, burned, and their eyes filled with sand and asbestos. The cause of the accident has not been made plain, or at least not made public. City Boiler Inspector Scheid, after an inspection of the shattered parts, criticised the safety-valve arrangement, which, he says, permits steam to condense in the pipe through which it runs to the valve in order to render blowing off inoffensive to the occupants. He thinks the water causes the valve parts to rust and become inoperative unless given frequent attention. He thinks also that the diaphragm of the automatic fuel-feed device possibly became defective, causing the generation of excess steam.

The accident caused much interest throughout the city and revealed the fact that the city ordinances are mute as to automobile boiler inspections. This will probably be corrected soon. Another result will be better care and closer attention to the working parts of the cars in the local garages. From expressions heard it seems likely that the explosion will check the local sale of Stanley cars, which heretofore have been popular in Omaha.

MEGARGEL HAS REACHED CHICAGO

CHICAGO, May 19.—Percy Megargel, the transcontinental automobilist, arrived at Riverside, Ill., this afternoon at 4 o'clock, after traveling 10,636 miles. He was met at Riverside by several members of the Chicago Automobile Club, who escorted him into Chicago. He left Aurora at 9 o'clock this morning, but his machine broke down when he had gotten about two miles out of the city and he had to return for repairs. Megargel will resume his journey eastward early in the week, and expects to make good time between Chicago and New York, though he will not attempt any record driving. He will make short stops at the larger cities along his route.

MEGARGEL AT THE REO WHEEL.

MISSOURI FOR THE MAIN ROAD.

JEFFERSON CITY, MO., May 21.—Thirty county judges, lawyers, and business men, chosen by the Missouri good roads convention, recently called upon Governor Folk and asked him to issue a call for a special session of the Legislature to take up the matter of adopting steps for the speedy improvement of the roads in the State. The governor said he would give his reply in a few days. It was the plan of the committee which saw the governor to have the Legislature draw up a constitutional amendment, which can be submitted to the voters in the November elections, permitting a levy of 10 cents for road purposes. If this amendment is submitted in November and carried, some relief from the present intolerable conditions can be had within twelve months, while if the matter is delayed until the regular session of the Legislature in 1907, three years must pass before work can begin.

Missouri wants to be on the route of that transcontinental highway, which is no longer a vague dream, and the State wants to get ready for the national way by first making its own roads good.

LEGAL LIGHTS INSPECT THE SELDEN MOTOR

IT was a formidable array of legal talent, famous in the annals of patent litigation and fortified with the knowledge begot of wide experience, that gathered at the garage of the Decauville Automobile Company, Broadway and Fifty-sixth street, New York City, at high noon, Saturday, May 19. The meeting was arranged by counsel for the opposing sides in the suits now pending involving the Selden patent, the purpose being the examination of the original Selden motor and observation of its operation. George B. Selden, the patentee, accompanied by his sons, Henry R. and George B. Selden, Jr., were present, together with personal counsel, the Hon. George Raines of Rochester, and the A. L. A. M. was represented by W. A. Redding and Samuel R. Belts as counsel, S. T. Fisher, ex-assistant Commissioner of Patents, and H. F. Cunz. The defendant Ford interests were represented by R. A. Parker of Detroit as counsel, who was accompanied by Prof. Carpenter of Cornell University and Jesse Smith of New York, as experts.

The car was operated by the younger Seldens, and all interested parties so desiring were given a ride around the garage floor. The body and wheels of the car are new fittings, but the motor was made in 1877. Patent was not applied for by Mr. Selden until 1879, and same was not granted by the Patent Office until 1895. As a patent has 17 years to run, its limitation is six years hence, in 1912. The Selden car complete weighs 700 pounds, is four feet between wheels, which are 32- and 38-inch front and rear respectively. The motor is of the two-cylinder type, having three horizontal cylinders, with independent compression, and capable of a varying speed of from 100 to 500 revolutions per minute. The present ignition is jump spark.

Owing to the vast and varied interests involved in the present litigation, the demonstration by the original motor was one of particular interest. It was a part of the regular accumulation of evidence which is being taken before U. S. Commissioner John A. Shields, and which will be presented by him to the United States Court in October for a finding. Not until then will be learned what all the students of the Selden auto thought of its operation. The representatives of the opposition were not inclined to express an opinion on the matter last Saturday.

THE SELDEN CAR AS IT APPEARED AT THE DEMONSTRATION GIVEN TO THE PATENT EXPERTS.

George B. Selden, the inventor, is the man with the gray moustache standing partly to the rear of the body of the car. He can be distinguished by the watch chain on his vest. Henry R. Selden is at the wheel, and W. A. Redding and H. F. Cunz are at the right of the picture. The Hon. George Raines is behind the steering wheel, only his straw hat showing.

MAURICE FOURNIER, BROTHER OF HENRY, DRIVER OF A CLEMENT.

CAGNO, DRIVING THE WINNING ITALA, NEAR CERDA.

CAGNO'S TARGA FLORIO VICTORY.

PALERMO, May 8.—Italy has had the honor of organizing and the glory of winning the first great automobile event of the season. The scene of the victory was the island of Sicily; the nature of the battle, a 282-mile run round a difficult circuit on touring machines; the victor, Cagno, on an Itala machine, and the promoter of the affair, Chevalier Florio.

At 5 o'clock on Sunday morning, May 6, everything was in readiness and large crowds were at the starting point. The nature of the race was somewhat of a novelty, being a speed test for touring cars under racing conditions, the regulations merely specifying that all chassis must be the ordinary serial construction of the firm, and catalogued at not more than $4,000. On every other point the builders were given full freedom, and it was thus that there were to be found side by side at the starting line modest 20-horsepower cars and monsters with 60-horsepower under their bonnets.

Promptly at 6 o'clock the first car was sent away; it was Lancia, on a Fiat, who had been designated by the drawing of lots to set the pace. Ten minutes later Le Blon, on a Hotchkiss, made a good start. The French driver was handicapped by having a four-seated body, the other competitors only having a two-seater. His wife was on board with him, acting as mechanic. Cagno, on an Itala, went away in splendid style, followed by Achille Fournier, on a Bayard-Clément, and Bablot, on a Berliet machine of Lyons construction. Pope, the Englishman, lighted a cigar for his little run on the Itala. Maurice Fournier, replacing Lebellier, followed half an hour after his brother, also on a Bayard-Clément. Baron de Caters, who had abandoned the *Seasick* for the moment, stood true to Itala and piloted his land machine as cleverly as he had handled his seagoing racer. Rigal and Graziani, both Itala champions, brought up the rear.

The first to start, Lancia was the first man to finish the round, but he was followed closely by his younger rival, Cagno, on his Itala, and when allowance had been made for the starting time, it was found that Cagno was first and Lancia second.

At the end of the second round Cagno was not only still leading, but had shaken his most formidable rival, Lancia, down to sixth place.

With the third round interest increased, for, though the match now lay almost entirely between the Itala representatives, there was still a formidable competitor in the French Berliet. At last the trumpet call was heard, and Cagno rushed by in 9 hrs. 32 min. 22 sec.

1. Cagno (Itala)	9:32:22
2. Graziani (Italia)	10:05:32 1-5
3. Bablot (Berliet)	10:20:05 1-5
4. Rigal (Itala)	10:25:08 4-5
5. De Caters (Itala)	10:38:26 1-5
6. Le Blon (Hotchkiss)	12:09:23

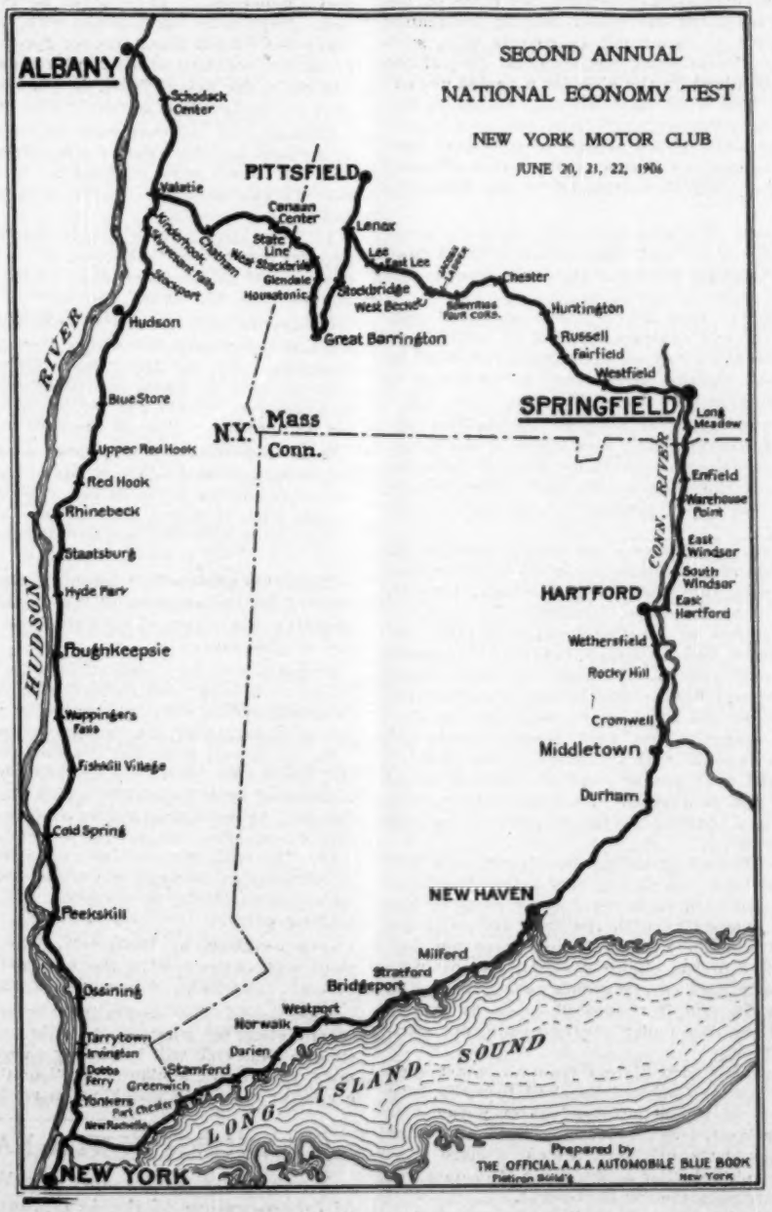
Lancia was unable to finish the last round, owing to a leaking gasoline tank.

LANCIA, THE SPECTACULAR FIAT DRIVER, IN ACTION

RIGAL, ANOTHER ITALA DRIVER, PASSING FINISHING STAND.

ON THE BASIS OF COST PER TON-MILE

IN the Second Annual National Economy Test of the New York Motor Club the awards will be made on the basis of cost per ton-mile. This feature eliminates all classification, and every car entered, no matter what its price or power, so long as it be a touring car or runabout, has a chance to win. This contest will stand in a distinctive class as an exposition of what can be accomplished in the art of passenger carrying by automobile, with minimum cost for operating. Aside from the value of the test as a commercial factor, the pleasure to be derived from a competition of this character is practically unlimited, as the route leads through one of the most charming sections of the country, up the banks of the Hudson river to Albany, through the Berkshire Hills in western Massachusetts, down the Connecticut valley to Middletown, across the base of the foothills to New Haven, and thence to New York by the south shore of Long Island Sound, a distance of 430 miles.



A gold and a silver cup and a bronze medal are offered by the club for the cars making the three best records. And certificates of awards will be given to all competitors who finish. A pilot car will be used to distribute confetti along the road and, in addition, complete running directions will be furnished all drivers. The test is in charge of the contest committee of the club, Harry Unwin, chairman, assisted by the technical committee, and will be under the supervision of a competent board of officers.

The entry fee is $100 and entries close with A. B. Tucker, secretary of the club, 31 West Forty-second street, at noon of Saturday, June 16. It is confidently expected the entry list this year will be a very large one, a prediction indicated by inquiries already received.

The following are essential extracts from the rules as formulated in the official entry blank:

Rules and Conditions of the Contest.

1. The Second Annual National Economy Test shall consist of three runs, as follows: New York City to Albany, N. Y., about 150 miles; Albany to Springfield, Mass., about 131 miles; Springfield to New York City, about 149 miles. Total distance, about 430 miles.

The test shall take place on June 20, 21, 22, 1906, one day being devoted to each run in the order stated.

Object and Basis of Charges.—2. The object of the Test shall be to prove the economy of operating motor cars. 3. The basis of comparative charges as against railway transportation for the entire test shall be as follows:

Passengers:	1	2	3	4	5	6	7
New York to Albany	$3.10	$6.20	$9.30	$12.40	$15.50	$18.60	$21.70
Albany to Springfield	2.95	5.90	8.85	11.80	14.75	17.70	20.65
Springfield to N. Y.	2.98	5.96	8.94	11.92	14.90	17.88	20.86
Totals	$9.03	$18.06	$27.09	$36.12	$45.15	$54.18	$63.21

Basis of Awards.—4. (a) The awards shall be made on the basis of cost per ton-mile. After a most careful consideration of methods of classification and handicapping, as employed in previous contests, the committee has unanimously agred to award all prizes on the basis of the total cost per ton-mile. This eliminates all classification, giving each car an equal chance to win. No handicapping is required.)

(b) The basis of the cost per mile computation is as follows: The total weight of the car, passengers, baggage, extra parts and equipment, in tons and fractions, is multiplied by the miles traveled, giving what is known as "ton-mile." The total cost or charges against each car as provided in Rules 34 and 35, when divided by the ton miles traveled, gives the average cost per ton-mile. Total cost shall mean the sum of all charges against each car as laid down in these rules, including gasoline, oil, repairs, adjustments, new parts, tires, fines, tolls, storage, etc.

Prizes.—5. The prizes for the Second Annual National Economy Test shall be as follows: First prize, a silver cup; third prize, a gold cup; second prize, a bronze medal; each to become the absolute property of the winner. A certificate of award will be given to each car completing the test under these rules.

Routes and Schedule.—6. The routes shall be: To Albany by way of Yonkers, Irvington, Tarrytown, Ossining, Peekskill, Cold Spring, Fishkill Village, Wappingers Falls, Poughkeepsie, Hyde Park, Staatsburg, Rhinebeck, Red Hook, Hudson, Kinderhook, Valatie, Schodack Center.

To Springfield by way of Schodack Center, Valatie, Chatham, New Canaan, Canaan Center, State Line, West Stockbridge, Housatonic, Great Barrington, Stockbridge, Lenox, Pittsfield, back to Lenox, Lee, East Lee, West Becket, Bonnyrigg, Four Corners, Chester, Huntington, Russell, Westfield.

To New York by way of East Long Meadow, Enfield, Warehouse Point, East Hartford, Hartford, Wethersfield, Rocky Hill, Cromwell, Middletown, Durham, New Haven, Milford, Stratford, Bridgeport, Norwalk, Stamford, Greenwich, Port Chester, New Rochelle.

Direction of Test.—9. The test shall be held under the direction of the Contest Committee, Harry Unwin, chairman, and the fol-

lowing officials: A referee, a superintendent of garages, a superintendent of observers, a quartermaster, and a chief inspector.

Entries.—10. Four-wheeled automobiles of any price and power, of the types known as touring cars and runabouts shall be eligible to compete.

11. The entry fee for all cars shall be $100, payable at the time of making the entry.

13. (a) Entries, with fees, shall be forwarded to A. B. Tucker, secretary of the New York Motor Club, Room 301, No. 31 West Forty-second street, New York City. (Telephone 5492 Bryant.) (b) Checks, etc., for entry fees shall be made payable to R. H. Johnston, treasurer of the New York Motor Club.

18. Every entry, if made by a manufacturer or his representative or agent, shall be with an understood guarantee to accept all orders at the entry price from all persons for exact duplicates of the vehicle or part thereof, entered for the test, which may be given on or before July 1, 1906, and to deliver all such vehicles, or parts so ordered, in perfect working order on or before October 1, 1906, provided a cash deposit not exceeding one-third the price of the vehicle is paid at the time of giving the order. Should the manufacturer or his representative or agent fail to comply with such guarantee, he may, at the discretion of the club, be disqualified from taking in any event organized by the club for a period not exceeding one year from the date when the club may decide to disqualify him.

Legal Equipment and Signs.—20. Every vehicle entered shall bear registry number plates of one of the States of New York, Massachusetts or Connecticut, and shall be registered in the State the number of which it bears.

Start and Finish of Runs.—23. Vehicles shall begin each day's run between the hours of 6 and 9 a. m., and shall arrive at their daily destination in the official garage between the hours of 4 and 10 p.m.

Weighing.—24. Each vehicle, with its full complement of passengers, baggage, extra parts and equipment, shall be weighed at the start and finish of each day's run at such places as shall be designated by the Committee. Failure on the part of the driver to comply with this rule shall result in disqualification.

Observers.—25. Every vehicle shall carry an official observer, for whom a front seat shall be reserved, and cars shall be under observation continuously, from the time of their delivery into the hands of the committee until the close of the test, either by the observers on the car or the superintendent of garages or his assistants.

26. Entrants must nominate one observer in respect to each car entered by them. The name of such observer must be submitted to the committee not later than 12 o'clock noon, Saturday, June 16, 1906, and preferably at the time the entry is made.

27. Observers nominated should be practical men, preferably engineers, designers, constructors, factory superintendents, managers or agents. Each should have driven an automobile and each should be familiar with all the general details of gasoline or steam car construction. Each must know the rules of the road and the current automobile laws of the States of New York, Massachusetts and Connecticut. Each must be familiar with the rules of this Test.

28. No person so nominated shall act as observer upon a car of the same make as that of his nominator. The club reserves the right to reject the name of any nominee for the position of observer without giving reasons therefor.

29. Each observer will, so far as practical, be placed on a different vehicle each day. He must not in any way assist drivers of cars; for instance, he must not turn on lubricators or perform any function, however small, in connection with the car. He must not assist drivers with suggestions. He must in all cases act impartially as the representative of the club. The only exception to this rule is that, in the case of cars carrying only two persons, the observer may, if he thinks fit, and is requested to do so by the driver, assist in repairing tires, but under the two cents per minute rate provided for in Rule 35.

33. Each observer shall remain with his car from the start each day until its arrival at its destination, and he shall formally turn the car over into the hands of the superintendent of garages or his assistants. He shall receive the appointed car from the garage officials in the morning. Should the driver of the car declare himself out of the test at any point during a day's run, the observer shall go by train to the stopping place for that night.

Observers' Reports.—34. Each observer shall make report, on cards given him for that purpose, of the weight of the car at the start and finish of each day's run; of the time consumed in making all repairs, adjustments, and replenishments; the reason thereof; the name of the part or accessory used; each purchase and replenishment of oil and gasoline; the quantity thereof; the employment of any other than the driver of the car; the time of such employment; the amount paid out by the driver or other person for anything in connection with the car, including mechanical help, tows, tolls, ferry charges, fees, fines, storage, etc. These reports shall be made whether or not the car is stopped for the purpose reported.

35. Observers shall report charges as follows: Storage at Albany and Springfield, one dollar ($1.00) per night; gasoline, twenty cents ($.20) per gallon; lubricating oil, ten cents ($.10) per pint or fraction thereof; time of all repairs, adjustments, or replenishments one cent ($.01) per minute for the driver and two cents ($.02) per minute for each and every other person employed. This rule shall include all work done in connection with tires.

38. Immediately after turning the car over to the superintendent of garages, the observer shall report each day to the superintendend of observers, and shall file his report in due form for the day, remaining until all points upon it are made perfectly clear and making affidavit to its correctness, if required.

Drivers.—39. A vehicle shall be driven by one person, the nominated driver, throughout a day's run, unless he shall be incapacitated, when his place may be taken by a substitute, by permission of the observer, the same being duly noted on the report.

40. Drivers must be familiar with the rules of the road, and the current automobile laws of the States of New York, Massachusetts and Connecticut. Each must be familiar with the rules of this test. Each must be familiar with the speed limits in all territory traversed. Each must observe speed limit regulations. Fines after arrest for breaking speed limit regulations shall be charged against the car. The act of fining is considered to establish blame on the part of the driver in so far as this test is concerned.

Garages.—42. All cars must be turned over to the superintendent of garages not later than 9 a.m., Tuesday, June 19, 1906. All tanks and lubricators must be filled not later than 12 o'clock noon of that day, in the presence of the observer appointed for Wednesday, June 20.

43. From the time a car is delivered to the superintendent of garages until it is taken out, no person except the driver, in the presence of his observer, shall be permitted to approach the car for any purpose whatever.

Occupants of Cars.—44. No extra occupants shall be carried beyond the capacity for which the car is designed, based on two passengers for the front seat (driver and observer), and for the tonneau seat or seats, one passenger for each fifteen (15) inches, measuring at widest part of top of seat cushion. Occupants shall not be allowed to ride on the floor or step nor on emergency seats.

Road and Running Regulations.—46. Cars must be driven with due regard to the rights of other users of the highways, and with consideration for horse-driven vehicles and pedestrians. Violations of this rule, if wilful, and, in the Committee's opinion, tending to bring motor cars into popular disfavor, shall result in disqualification.

Disqualification.—49. Disqualification may be made of any vehicle entered for the violation of these rules, upon notice, by the referee, and after the driver of the vehicle in question shall have been notified of the charge.

Protests.—51. Any competitor who wishes to lodge a protest must do so in writing, and deliver it to the referee. The protest shall be considered as soon as possible by the referee, who shall have the power to disqualify the vehicle against whom the protest is lodged.

53. An appeal from the decision of the Referee may be made to the committee. Such appeal shall be in writing and shall be accompanied by a fee of $25, which shall be returned if the appeal is upheld. Appeals shall not be considered if not made within twenty-four hours after the referee's decision.

57. The club shall not be responsible for the results of any civil or criminal proceedings which may be taken against any competitor. This responsibility is accepted by the competitor by the act of making entry.

Interpretation of Rules.—58. The interpretation of these rules shall rest entirely with the committee, who may alter or add to, or omit therefrom, if necessary from time to time.

Special.—60. The committee reserves the right to disqualify a contestant for what, in the opinion of the committee, is excessive speed. This rule will be rigidly enforced. A careful regard for the laws will avoid the chance of disqualification. To enforce this rule a special system of checking en route will be instituted.

WASHINGTON WILL HAVE SOME RACING.

WASHINGTON, D. C., May 21.—Within the next week articles of incorporation of the Washington Automobile Racing Association will be put on record. Only automobile dealers and salesmen in their individual capacity will be eligible to membership. The officers of the association are as follows: C. Royce Hough, president; C. W. Frank, vice-president; L. S. Jullien, treasurer; Rudolph Jose, secretary; B. C. Washington, Jr., general manager. The object of the new association is the promotion of automobile racing and hill-climbing contests, and other automobile events. The Bennings track has been secured for the first meet, in June.

BRAKE HORSEPOWER OF FOUR-CYCLE MOTORS

By GEORGE W. RICE, M.E.

FROM time to time many so-called horsepower formulæ have appeared in print; these have all been of an empirical form, or what is only a little better, based on cubic inches of piston displacement per minute, required for one horsepower.

Such formulæ may hold for any one firm building engines, if they always use about the same clearance in their different engines, and if they always obtain the same perfection of workmanship, but the mechanical efficiency of engines of different makes will vary and the different compression pressures due to the use of widely varying clearance volume will change the indicated horsepower.

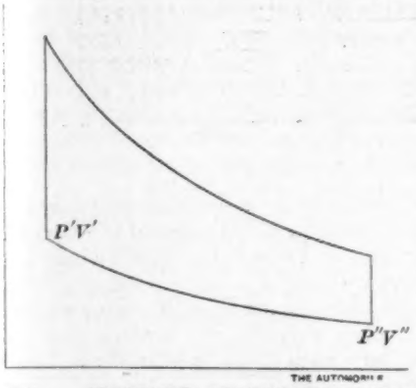


FIG. 1.—BRAKE H.P. BY GEORGE W. RICE.

Therefore it seems that a rational brake horsepower formula cannot be based on piston displacement per minute, nor on the indicated horsepower based on the theoretical indicator card with an assumed card factor.

Having complete data on about seventy engines of recent make, one way has occurred to the writer of getting around this difficulty.

Given the bore, stroke, revolutions per minute, and clearance in per cent. of the piston displacement of a given engine, and knowing that the valves are designed so as to allow that speed, we may get a formula for the brake horsepower which includes the compression pressure and the average of mechanical efficiency from modern practice.

Take a conventional gas engine card, as shown in Fig. 1, and make the assumptions that the expansion and compression curves have the same experimental equation, $pv^{1.3} = c$, which comes very near the truth, and that the pressure at any point on the expansion curve is c times that of the compression curve directly below. Then the work represented by the card area is equal to:

$$\frac{(p'v' - p''v'')\,c - (p'v' - p''v'')}{(n-1)} = (p'v' - p''v'')\frac{(c-1)}{.33}$$

$$= (p'v' - p''v'')\,c'$$

$$= (p'\,Cl.) - 14.7\,(1 + Cl)\,c'$$

But $P' = P''\left(\frac{V''}{V'}\right)^{1.3}$ $\therefore$ $= (P''V'\left(\frac{V''}{V'}\right)^{1.3} - P''V'')\,c'$

$$= (P''V'\left(\frac{V''}{V'}\right)^{1.3} - P''V'')\,c'$$

$$= \left(14.7\,(1 + Cl)\left(\sqrt[3]{\frac{1 + Cl}{Cl}} - 1\right)\right)c$$

$$= C'\,(1 + Cl)\left(\sqrt[3]{\frac{1 + Cl}{Cl}} - 1\right)$$

This last expression represents the work done per cycle, which, modified by the proper engine constants, gives us the horsepower per cylinder.

$$\text{H.P. per cylinder} = \frac{D^2 \times L \times R.P.M.}{Constant}(1 + Cl)\left(\sqrt[3]{\frac{1 + Cl}{Cl}} - 1\right)$$

Where D = the cylinder bore.
L = length of stroke.
$R.P.M.$ = revolutions per minute.
Cl = clearance as a fraction of piston displacement.

This value for the horsepower per cylinder was plotted as abscissae and maximum brake horsepower as ordinates for a large number of engines, giving the curve shown in Fig. 2. From this curve the constant in the horsepower formula was found to be 14000.

Now the quantities in the brackets are functions of the clearance, and by plotting a curve between the function and the clearance, we get a much simpler, and equivalent expression $.48 + (1 \div 10Cl.) =$ see Fig. 3. Our equation for the maximum horsepower is then a rational formula, the constant in it being based on the current practice of 1905 and 1906

$$B.H.P.\text{ per cylinder} = \frac{D^2 \times L \times R.P.M.}{14000} \times (.48 + (1 \div 10\,Cl)).$$

This formula is charted in Fig. 4, shown on the next page.

As an illustration of the above let us find the horsepower of an assumed engine by the formula and also by the chart, Fig. 4. Engine data: 4 1-2-inch bore, 5-inch stroke, 1,000 r. p. m., 25 clearance (in per cent. of piston displacement):

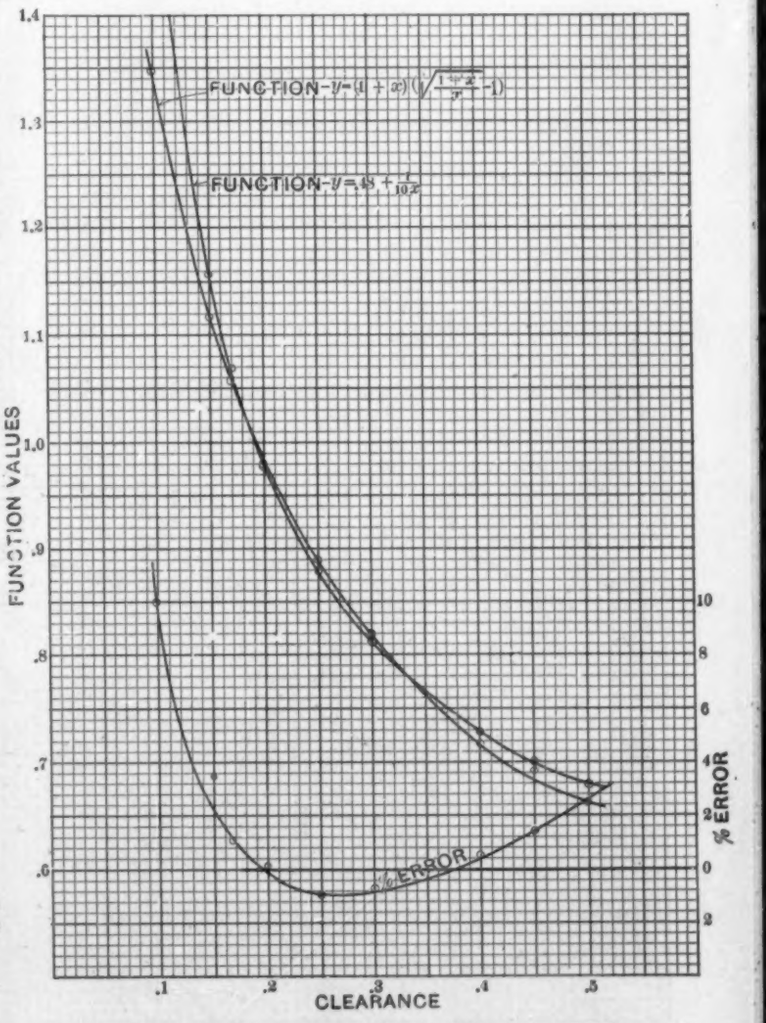


FIG. 3.—BRAKE HORSEPOWER BY GEORGE W. RICE

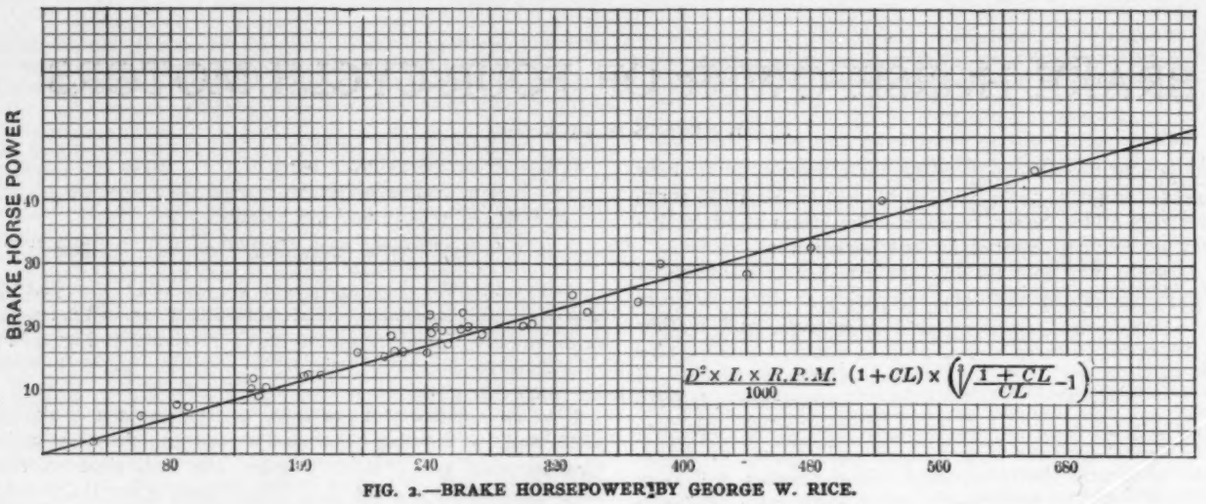


FIG. 2.—BRAKE HORSEPOWER BY GEORGE W. RICE.

$$\text{B. H. P.} = \frac{D^2 \times L \times R.P.M.}{14000} \; (.48 + 1.10Cl)$$

$$= \frac{20.25 \times 5 \times 1000}{14000} \; (.48 + .4)$$

$$= 6.365, \text{ result by formula.}$$

While with the chart the solution is as follows: Starting at the top of the chart with 4 1-2-inch cylinder diameter, move down until you intersect with the diagonal line marked 1000, then move horizontally until you intersect with the diagonal line marked .25, from there vertically to the diagonal line marked 5, and from there horizontally to the vertical "Maximum Brake Horse Power" scale, where the result 6.3 may be read off. This solution is indicated on the chart by the heavy line carrying the arrows. In case it was desired to modify this formula so as to fit any one particular builder's make of engine, the factor 14000 would be the one to change.

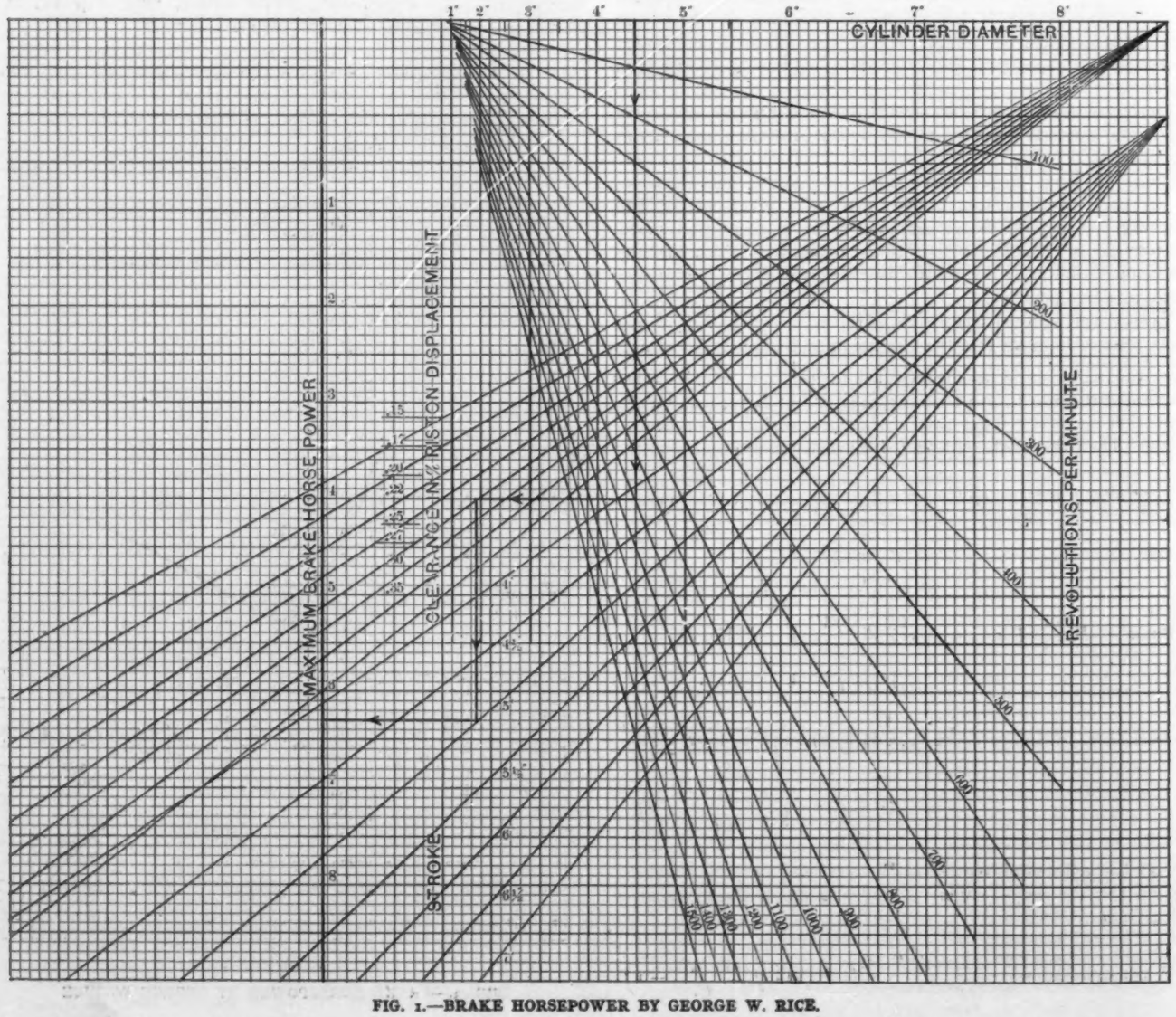


FIG. 1.—BRAKE HORSEPOWER BY GEORGE W. RICE.

DESIGN AND CONSTRUCTION OF AUTO BOATS*

By JAMES A. SMITH.

ALTHOUGH the high-speed motor boat has claimed a considerable amount of attention the last two years, it is of very recent introduction, if we except the high-speed steam launches and the early torpedo boats of twenty to thirty years ago. This paper concerns itself mainly with the modern types of high-speed launches which have been rendered possible by the developments in internal-combustion motors since the present century opened.

It is, of course, well known that such firms as Messrs. Thornycroft were building in the seventies and eighties powerful steam launches having a form of hull which has served as a basis on which the designers of modern motor launches have worked, but it was not until within the last three years that it became possible to install motors of 100, 200, and even 300 actual horsepower in boats having a total displacement of less than two tons. Except for the fast steam launches referred to, there was no gradual development of the modern motor boat during a long period of years, as has been usual in most other branches of engineering, so that designers have been, as it were, suddenly confronted with the problem of producing safe and seaworthy designs for very high powers, with practically no data upon which to work. The large number of fast launches now in existence which fulfill these conditions is a proof that the problem has been attacked and solved in a satisfactory manner, so that even at this early date it is interesting to recall the fears with which hull designers were beset so recently as three years ago. It was then felt that a 2-foot propeller revolving at the rate of seventeen to twenty revolutions per second would have a tendency to upset a very light and narrow hull, also that such hulls would inevitably drown themselves in anything of a seaway, or that they would be dangerous and unmanageable under the helm, and, in brief, that they were so far in advance of shipbuilding practice that they represented an impracticable problem. Such fears have proved to be without foundation.

The first serious attempt to produce a high-speed motor launch in Great Britain was made by S. F. Edge in 1902. This highly successful boat was designed by Linton Hope, and represented an important advance on anything previously attempted, a speed of 19 knots being attained in fairly smooth water, with 66 rated motor power. At the same time a large development in high-speed motor launches took place in France, although no boats of any note were produced there until 1903, when Thubron's *Trèfle-à-Quatre* was built; she was 33 feet long, and had a motor of 85 horsepower. These two boats proved what could be done, and since then the development has been very great.

Rules Affecting Design of Auto Boats.

No sooner had the practicability of the marine motor been proved than it was recognized as a suitable propelling agency for light river launches, yachts' tenders, ferryboats, speed-cruising boats, and boats for various other pleasure and commercial purposes. A new and interesting sport had been introduced, and many people had such launches built almost entirely for racing purposes. In 1902 it was felt that the sport should be properly governed, and the governing body in Great Britain, the Marine Motor Association, was founded in that year. In the United States, where the natural facilities for the use of motor boats are many times greater than in Great Britain, the governing body, the American Power Boat Association, was formed at the same time. In France in the same year the Automobile Club de France undertook the management of the sport, as did also the Yacht Club de France, while in Germany in the following year the Deutscher Automobil Club provided suitable legislation.

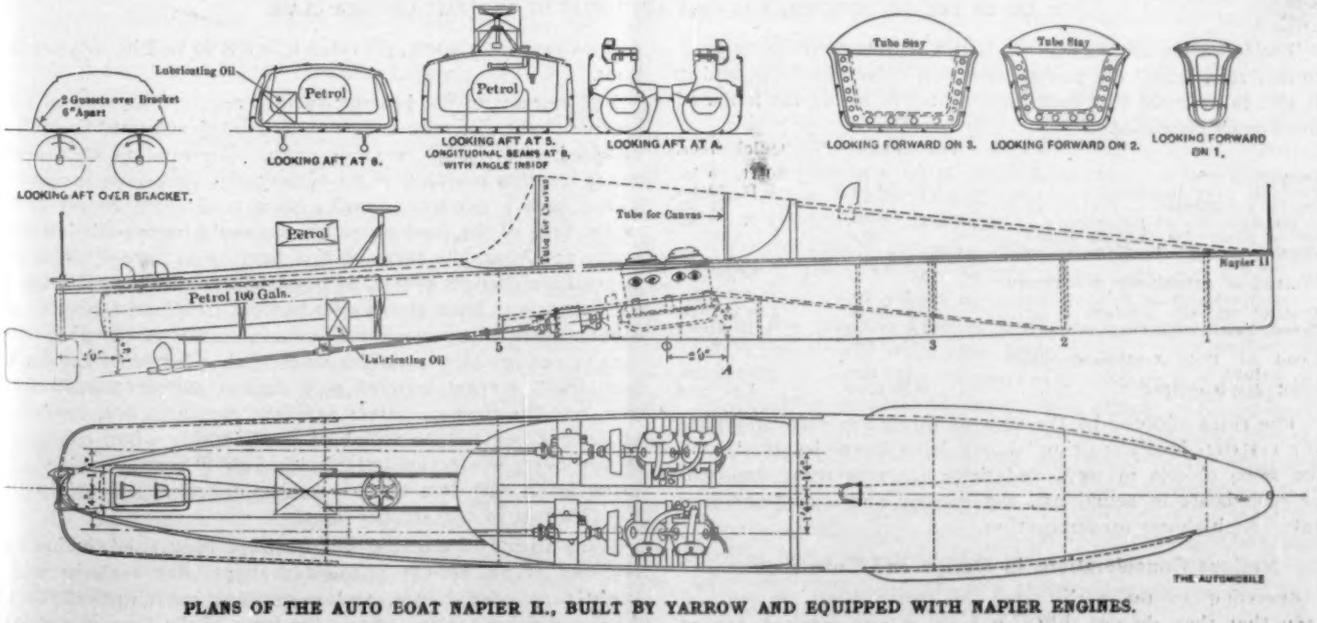
The various racing rules are outside the scope of this paper, but we may consider some of the rules which have had a bearing on the design and construction of the boats themselves. The boats naturally fell at once into two classes:

(1) Racers, upon the design of which none of the governing bodies has imposed any other restriction than that of length.

(2) Restricted Classes, for which rules have been provided governing beam, freeboard, life-saving appliances, and latterly horsepower.

The length of the high-powered racing classes has been practically fixed at 40 feet, or 12 meters in the case of French boats, this length being limited by European railway facilities, such boats being usually taken by rail from one place to another for racing purposes. The beam and freeboard of these boats have naturally been reduced as much as possible, but it has been found that for powers over 100 horsepower a minimum beam of about 5 feet, or 8 beams in the length, is necessary to provide sufficient stability under helm, and to give sufficiency of bearing aft. With the object of saving weight, many of the racing boats have had

*From a paper read before the Institute of Naval Architects in London.



PLANS OF THE AUTO BOAT NAPIER II., BUILT BY YARROW AND EQUIPPED WITH NAPIER ENGINES.

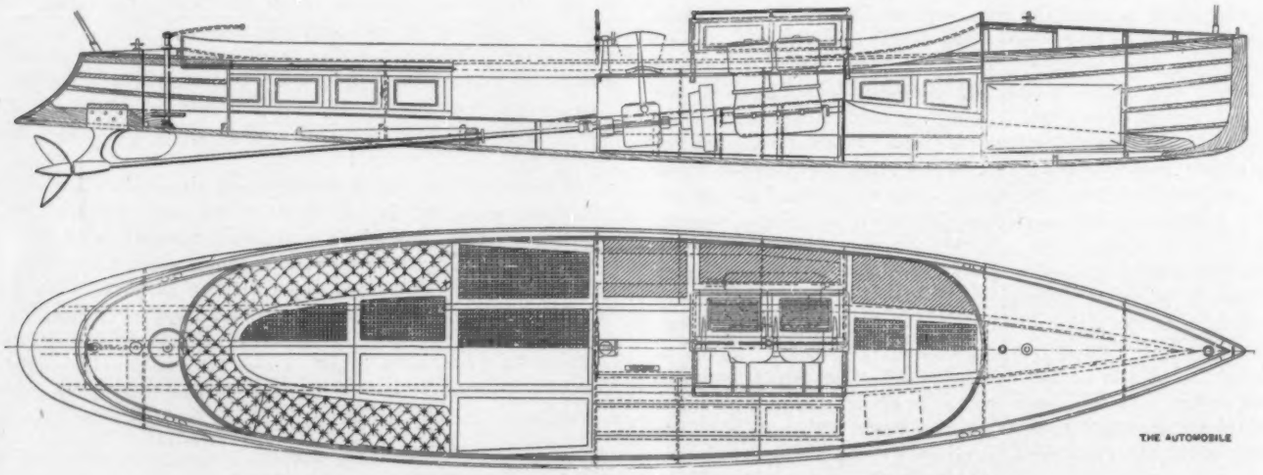
their freeboard reduced to an unwise extent, but the small advantage in displacement gained thereby does not at all compensate for the discomfort and danger entailed.

In the beginning the Marine Motor Association assumed that the restricted classes should be specially legislated for, so as to encourage healthy and safe types of boats, and it was rightly thought that the kind of boat required for the many duties of a yacht's launch or tender was the type which ought to be developed. Their restricted classes were therefore described as "yachts' launches," and a maximum beam-length ratio was fixed, varying from 3.4 for the smallest classes to 5.2 for boats 30 feet in length, the minimum freeboard being fixed at 25 per cent. of the minimum beam. Within these limits safe and comfortable boats can be designed, which may be depended upon to possess sufficient stability and reserve of buoyancy even in a heavy seaway. With the object of putting a premium on displacement, and indirectly on scantlings, the association devised a rating rule in which the area of greatest immersed cross section is a divisor, the rule at present being:

$$\frac{(\text{Motor Power})^2}{\text{Area of immersed midship section in square feet}} + \sqrt{\text{Length overall in feet}} = \text{Rating for time allowance,}$$

so that boats of heavy build gain a considerable advantage when racing under time allowance. It will also be observed that high powers are not favored in the restricted classes. More recent legislation restricts the power of these boats to 3.5 horsepower per ton (Thames measurement).

from the ordinary types then in use. Although the electric launch came greatly into favor during the last decade, the weight of machinery per horsepower was comparatively so high that special forms of hull were not found to be necessary, so that the majority of these boats are found to be of what we may call the ordinary ship form, with long straight keels, and either a transom or canoe stern or long counter. Soon after the introduction, however, of the internal combustion motor the speed-length ratio rose very rapidly, and a short experience was sufficient to prove that the ordinary ship form was unsuitable. The difference between the water pressures on the fore- and after-bodies caused such launches to trim so much by the stern when under way that they were not only uncomfortable but dangerous, consequently the plan was adopted of cutting away all the deadwood aft, and leaving the run of a practically flat section. In many cases this flattening and widening of the after-body sections have been carried to extremes, probably as the result of some confusion between the causes and effects of high speeds. This form of after-body is common to nearly all high-speed motor launches, and for such vessels it has proved to be satisfactory for sea work, providing as it does a large amount of surface and initial stability, and tending to counteract the "throw-over" of the screw in a narrow beam boat of high power. It has also been found that a boat of this form, in the case of a break-down of machinery, behaves well in the trough of a sea, keeping practically normal to the wave-surface owing to its flat form and light displacement, and that



PLANS OF THE QUICKSILVER, A 30-FOOT AUTO BOAT OF THE FAST CRUISER CLASS.

The following are particulars of two representative boats built to this rule, before the power restriction came into force, and it is also to be noted that both these boats are within the limits of the French restrictions:

	Takumono.	Quicksilver.
Length overall	21 ft. 4 in.	30 ft. 0 in.
Breadth over planking	4 ft. 10 in.	5 ft. 10 in.
Draft amidships	11 in.	11 in.
Draft extreme at propeller	1 ft. 8 in.	2 ft. 0 in.
Motor power by M.M.A. Rule	12.6	39
Weight of hull department complete	800 lbs.	1,500 lbs.
Weight of machinery department complete, tank full	590 lbs.	1,300 lbs.
Area of midship section	2.72 sq. ft.	3.06 sq. ft.
Speed, light, with crew only	12.8 knots	18.2 knots
Revolutions	1,000	900
Load at Rule freeboard, deadweight	830 lbs.	600 lbs.
Load displacement	0.99 tons	1.52 tons

The rules adopted by the various foreign governing bodies for restricted or "cruising" boats have been designed with the same objects in view, and there are now many hundreds of such boats in actual use, the number also increasing at a rate which shows no diminution.

Various Considerations in Design and Construction.

Reverting to the early types of motor boats, it will be seen that they do not differ in form in any marked degree

it ships very little water, provided it is left to find its own conditions.

The amount of flat bearing surface required to prevent excessive change of trim need not be considered until the ratio of speed to $\sqrt{\text{length}}$ exceeds unity. The ratio in high-speed motor launches is usually in the vicinity of 3, sometimes exceeding 4, and here a minimum bearing surface of about 40 per cent. of the area of the load-water plane should be provided. Generally speaking, the form of this bearing surface is of more importance than its extent, as boats which have been designed for one power have afterwards had their motors replaced by others more than twice as powerful without showing excessive change of trim under way. Other forms of run have been tried, varying between a V section and a tunneled section, but the former, unless carefully wrought out, tends to produce a boat which will heel considerably when the helm is put over, while the latter, although it permits the shaft to be fitted with less rake, is apt to interfere seriously with the free run of the stream lines.

Many forms of midship section have been tried, including sections of an almost triangular shape, flat sections with slightly rounded bilges, and sections of an elliptical form. As the midship section affects the form of the lines in a great

part of both bodies, and as the skin friction must be reduced as much as possible, a section should be made approximating to that giving the least wetted surface, and the form now generally adopted is that of an ellipse V-d slightly towards the keel. This form lends itself to a good type both of after-body and fore-body, permits of an easy angle of entrance of the water lines, and of a suitable form of sectional area curve. Perhaps the best example of this form of midship section is that of *Trèfle-à-Quatre*. As to the fore-body, some designers have recommended that it should be made up of sharp V sections, forming with the after-body the double wedge or "all entrance and all run" form of lines. This form is good in theory, but does not work well in practice, as a short high-powered boat built strictly on these lines would bury itself too much when among waves, and it is also difficult to see what would be lost by cutting off the whole of the deep fore-foot, thereby lessening the wetted surface, and avoiding panting and vibration forward; when this is done the theoretical double wedge no longer exists.

Shallow U-shaped sections forward have been frequently used, giving good results in the matter of speed, but they tend to break the water into fine spray a short distance from the stem, which, coming inboard, renders the boat uncomfortable. A suitable form of fore-body is produced by the adoption of a compromise between the very sharp V section and the U section.

The form of sectional area curve is not of great moment in ordinary well-designed boats; for those who prefer it a curve of versed sines and trochoids will give as good results as any other.

The shape of the boat above the water line is largely a matter of individual taste, and with the light scantlings usually employed, it is possible to form the upper body, and particularly the stern, into almost any desired form.

Other forms of under-water body have been tried, including straight-line boats with perfectly flat bottoms, which are easy to build, but possess no other advantages. In *Napier II.*, designed and built by Yarrow, a new form of hull has been adopted consisting of an after-body of usual form, a flat midship section with slightly rounded bilges, and an inclined plane forward from about a third of the length from the stem, meeting the water line at the stem; the object being to cause the fore part of the boat to lift out of the water, and thereby lessen the skin and wave resistances. Very satisfactory speed results have been obtained from this boat, and a second boat of similar design, *Yarrow-Napier*, has been built. Although it is difficult, from a mechanical standpoint, to estimate the advantages to be gained by the adoption of this form, there appears to be little doubt that the "skating" effect has been achieved.

The particulars of *Napier II.* are as follows:

Length overall	40 ft. 0 in.
Beam extreme	5 ft. 0 in.
Draft amidships	9 in.
Weight of hull department complete	3,300 lbs.
Weight of machinery department complete, tank full	3,400 lbs.
Total displacement with crew of three	3.19 tons.
Motor power by M. M. A. Rule	146

Following on the experience gained with *Napier II.*, Messrs. Yarrow have just completed a 60-foot second-class torpedo boat, "1176," built of steel, and fitted with five 75-horsepower Yarrow-Napier motors. A form of underwater body similar to that of *Napier II.* and *Yarrow-Napier* has been adopted. The boat travels very lightly over the water, with, judging from the waves and wake, very little wave resistance. Comparing this boat with a second-class steam torpedo boat, the weights and speeds are:

	2nd Class Steam Torpedo Boat.	"1176."
Displacement	11 tons	8 tons.
Weight of machinery department, steam up	5.25 tons	3 tons.
I.H.P.	300	375
Average speed, smooth water	20 knots	25 knots

The sheer draft of *Napier*, a 12-meter launch built by Saunders last year, illustrates a type of underwater body designed on exactly opposite lines to the Yarrow boats. The fore-body consists of V sections, passing into a midship section with a hollow bilge, the hollow increasing aft of midships until at about one-fourth of the length from the stern the vertical underwater body disappears, leaving flat sections aft of this of the usual motor boat form. The after part of the vertical body, therefore, appears not unlike one of the built-out shaft bosses of a twin-screw steamer. Very fine entrance lines are obtained; and, although the boat has more wetted surface than one of usual form, she has very little wave-making resistance. Constructional advantages are also gained, the long motor-bearers being dispensed with, while the shaft may be fitted almost horizontally.

Methods of Construction and Materials Used.

Some of the earlier motor boats, including *Napier I.* and *Napier II.*, were built of steel, but it has been found that steel is an unsuitable material for light high-powered boats under 50 feet in length. The chief disadvantages are, first, the difficulty of obtaining a fair surface, which is of great importance in this type of boat, and secondly, the difficulty of making satisfactory joints in the thin material which has to be employed. Considerations of weight and expense tend also largely in favor of wood in the construction of such boats. The weight of hull of *Napier II.* was 1.47 tons for 140 horsepower, but a similar hull of a suitable wood construction need not have weighed more than 1,120 pounds complete. For such light boats wood has many advantages.

The systems of wood construction commonly adopted are: (1) Ordinary carvel planking with cut or bent timbers. (2) Double skin without timbers for small boats, and with timbers for larger boats or for higher powers. (3) Treble skin with or without timbers. The first method (planks and timbers) is safe to employ where weights need not be greatly cut down, and it is also the cheapest. The second system (double skin) is that most commonly employed for high-powered boats, and gives satisfactory results in every way. For light, fast launches up to 25 feet in length timbers need not be used, and in boats of greater length, or with higher powers, bent timbering may be introduced with advantage. The construction plan of *C. G. V.*, a racing launch of 130 horsepower, shows an example of this method of building, the details being:

Length overall	11.99 meters (39 ft. 4 in.)
Breadth extreme over p. nking	5 ft.
Depth amidships to coaming	3 ft. 6 in.
Draft amidships	8 in.
Draft extreme at propeller	2 ft. 3 in.
Displacement, total	1.7 tons.
Weight of hull department complete	750 lbs.
Weight of machinery department complete, tank full	2,700 lbs.
Load at designed water-line	350 lbs.

The third system (treble skin) is more expensive, without corresponding advantages. Other systems have been introduced, including the "ribband carvel" system, consisting generally of a light single carvel skin with very light timbers, and having the edges fastened by means of edge strips inside, scored over the timbers. This system gives a somewhat lighter hull than No. 2, but is much more expensive, and necessitates highly skilled workmanship. Saunders' sewn system is also largely adopted for speed launches; by this method two, three, four, and occasionally five skins of very light veneer are sewn together with copper wire, producing a form of skin which is exceedingly strong, and which may also be built to forms which are almost impossible by any other system, each skin being laid on separately, and the whole afterward sewn together.

It will be noticed that in most of the high-powered launches the requisite longitudinal strength is chiefly obtained by extending the solid wood girders carrying the machinery over a great part, or the whole, of the length of the boat. An extension of this idea has been recently devised, according to which the skin or shell of the vessel is not required to contribute directly to the structural strength, the engine girders being constructed to form, in conjunction with one or more other members and suitable transverse framing, a complete framework in themselves.

THE AUTOMOBILE ROUTE INTO NEW HAVEN.

Editor of THE AUTOMOBILE:

[332.]—Several news notes have appeared in the newspapers recently, announcing the opening of the new Kimberly avenue bridge over the West River between West Haven and New Haven, Conn. This is of interest to automobile tourists, since it restores the route in and out of New Haven as the A. C. A. and A. A. A. cards have had it practically from the beginning. But as this bridge has been entirely out of commission for at least two years, there has no doubt been a lot of trouble for locally unacquainted tourists using these cards, since the connection into New Haven that way has been absolutely closed.

The preferable entrance into New Haven from this direction was very carefully considered at the time of shaping the New York-New Haven routes for the Automobile Special A. A. A. Blue Book, especially as the bridge just completed had been expected to open the early part of the summer. Some personal experience and the best advice, however, led the compiler of the Blue Book to give first place to the route universally used during the long reconstruction of this bridge, and to give the old route the subordinate form for the convenience of any who might have reason to go that way.

In the first place the old route was made up of portions of the Shore Road, Second avenue, Monahan street, First avenue, Elm street, Kimberly avenue (from which the new bridge is named) and Congress street to Church street, then up Church street to Chapel street, the principal four corners of the city. This route is now restored to its former practicability, but no one who has been over it would recall the way as easy to find or follow—particularly this side of the bridge. On the other hand the "New" route, which turns left from the Shore Road on Savin avenue to "West Haven Green," thence through Campbell avenue and Davenport avenue, is good running throughout and much easier to follow, either from a printed schedule or from verbal directions.

It is not expected, therefore, that the Kimberly avenue bridge will again become the factor in road travel that was formerly the case. On the other hand, it will take care of most of the trolleys and heavy traffic; even if a trifle shorter (not much shorter in any event), the other route will be quicker and easier for automobiles. Another thing: Entering by Davehport avenue one is well placed for a continuance of the run across Yale "Common" (for Meriden and Hartford) without going through the crowded trolley and traffic center at Church and Chapel streets.

And should one's turning point for the through run be that part of the city north and west of the "Common," one may turn left through Orchard or any other convenient street without going downtown at all. There is at least one prominent garage in that section, where the routes to (1) Derby, Ansonia and Waterbury, and (2) Mt. Carmel, Cheshire and Waterbury diverge, as well as routes to various local points. These considerations further influenced the Blue Book to give second place to the old-time entrance over the Kimberly avenue bridge; and the writer believes that the A. C. A. route cards could, with advantage, be changed in the same manner.

Clinton, Oneida County, N. Y. ROBERT BRUCE.

TO FIND POSITIVE AND NEGATIVE POLES.

Editor THE AUTOMOBILE:

[333.]—Can you please inform me how to find the positive and negative poles for charging storage batteries from a dynamo or light installation. My house is lighted from the city with 16 candlepower lamps at 110 volts. Should I require a special switchboard, or could I charge from a lamp socket? In the shop we have a dynamo of 110 volts at 2,000 revolutions; the engineer told me it was a direct current, yet I read a book which said all dynamos produced alternating currents. Also, he said the more resistance you put in, the more power is transmitted to the driven articles; that is, if you have 20 lamps burning and you want 30 lamps on, you put more resistance in. H. T. S.

Salt Lake City.

To test the positive and negative poles of any direct current circuit, immerse the terminals in a bath of slightly acidulated or salted water. The current will flow through the water causing bubbles of oxygen to rise from the positive pole and bubbles of hydrogen to rise from the negative pole. There are about twice as many of hydrogen as there are of oxygen bubbles formed, hence the terminal from which the greater number of bubbles rises is the negative pole.

Decreasing the resistance of the external circuit, the voltage remaining constant, causes more current to flow and since the energy in an electric circuit is the product of the voltage multiplied by the current (amperes), 30 lamps will require one-half again as much energy as 20 lamps require. All dynamos generate, primarily, an alternating current, but by the interposition of a commutator in the direct current machine the current is practically switched and caused to flow in one direction. An ignition battery may be charged by connecting it in series with a 32 candlepower lamp in an ordinary 110 volt lighting circuit.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

May 24-26—Open Air Show, Empire City Track, New York Trade Association.

Tours.

May 30...—Endurance Run, Salt Lake City to Ogden, Utah. Bert Fuller, Manager, Salt Lake City.
June 6...—Orphans' Day, Second Annual Celebration by the New York Motor Club.
June 16-18—Three-Day Tour, Bay State Automobile Association, Boston to Rye Beach, N. H.
June 18-23—Second Annual Economy Test, New York Motor Club.
June 21-26—Second Annual Tour, Albany Automobile Club, Albany to Boston and Return.
June 23...—Rochester, N. Y., Automobile Floral Parade at Genesee Valley Park. Rochester Automobile Club.
July 12....—Annual A. A. A. Tour, Chicago to Bretton Woods, N. H. Rules for the Glidden Trophy operative from Buffalo.

Race Meets and Hill Climbs.

May 30...—Boston Annual Meet of the Bay State Automobile Association, Readville Track.
May 30...—Gates' Mills Hill Climb. Cleveland (O.) Automobile Club.
May 30...—Baltimore (Md.) Race Meet, Maryland Motor Exhibition Association.
June 9...—Hohokus, N. J., Second Annual Race Meet of the North Jersey Automobile Club. (Robert Beattie, secretary, Little Falls, N. J.).
Sept. 3....—100-Mile Road Race, on 25-Mile Circuit in Monroe County, N. Y. Rochester Automobile Club and New York State Automobile Association.
Sept. 22...—American Elimination Trials for Vanderbilt Cup Race (Long Island Course probable).
Sept.....—Colorado Springs. Two-Day Meet. Centennial Celebration Discovery of Pike's Peak.
Oct. 6....—Vanderbilt Cup Race, American Automobile Association.

Motorcycle Tours and Contests.

May 30...—Fort George Hill Climb, New York Motorcycle Club.
May 30...—Race Meet, Chicago Motorcycle Club, Washington Park Track.
July 3-7..—Annual Endurance Run and Meet, Federation American Motorcyclists, Rochester, N. Y.
July 4...—Tour to Rochester, N. Y., New York Motorcycle Club.

FOREIGN.

Shows.

Oct. 5-14—Leipsig (Germany) Exhibition, Krystall Palast.
Nov. 1...—New Zealand International Exhibition opens at Christchurch.
Nov. 1-16—Berlin (Germany) Automobile Exhibition.
Nov. 15-24—London, Olympia Motor Show.
Nov. 23-Dec. 1—London, Stanley Show, Agricultural Hall.

Tours.

June 5-13—Herkomer Cup Touring and Speed Trials, Munich, Bavaria.
June 11-16—Land's End to John O'Groat's. Auto Cycle Club of Great Britain.
June 13-16—Scottish Reliability Trials.
July 26-Aug. 15—Circuit Européen, 3,000 miles, Paris, Milan, Vienna, Berlin, Cologne, Paris.

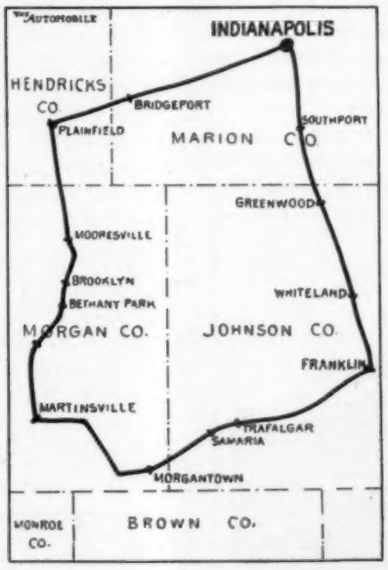
Races, Etc.

May 27...—Motor Cycle Club of France, Championships.
June 26-27—Le Grand Prix, Sarthe Circuit, France.
July 8....—International Cup Race for Motorcycles, Cesky Club Motorcyclistu of Austria.
July 15...—Suze-Mont Cenis Hill Climb (Italy). Automobile Club of Turin.
Aug. 1-15—Circuit des Ardennes (Belgium).
Aug. 9-12—Malchamps (France) Hill Climb Tests.
Aug. 15-16—Ventoux (France) Automobile Meeting.
Aug. 14-19—Ostend (Belgium) Meet.
Aug. 18...—Liedekerke Cup Race.
Aug. 23...—Semmering Hill Climb.
Aug. 27-Sept. 2—Brescia (Italy) Automobile Meeting.
Sept. 27..—Tourist Trophy Race, Isle of Man, A. C. of Great Britain.
Oct. 7....—Chateau Thierry (France) Hill Climb.
Oct. 28...—Gaillon (France) Hill Climb.

ONE HUNDRED MILES IN SOUTHWEST INDIANA

By CLARENCE L. CUMMINS.

INDIANA'S ninety-two counties contain something like 75,000 miles of roads, and that the most of them are good is due to the crusade, first started by the army of bicycle riders of a few years ago, continued by the awakened farmers, and now carried on by the 3,000 owners of automobiles in the state. Indiana has few elevations of note, and the most of the hills tended to mar the pleasure of the automobile driver are located in the southern part of the state, little traversed by automobiles. In the southern part of the state, too, there is found a trace now and then of the ancient toll system, which is frequently doubled for the automobile driver, and overlooked for the man with the horse and wagon.



Naturally, with such a predominance of good roads, Indiana affords an unusual number of routes for automobile tours. Broad, well-kept roads, with scenery unsurpassed by any Western state, may be found in any direction from Indianapolis, and whether the route be 20, 50 or 100 miles long, there is generally the same pleasant monotony of good roads and beautiful scenery. But the old routes often grow tiresome and some of the more venturesome drivers seek new tours through Hoosierdom. A route that will afford all sorts of roads and conditions—good roads, bad roads, level stretches and hills that will test the hill-climbing ability of the automobile—are sought. There is hardly a day but what some of the 600 drivers of Indianapolis are out seeking new routes or finding methods of improving old ones. Such a route has just been "discovered," and it promises to develop into the most popular diverging from Indianapalis. It is 100 miles long, the average run for a day of an Indiana driver, and offers a diversity that should please the most exacting. The scenery is beautiful along the whole route, and the roads are of almost every kind of construction known to Hoosier road-makers, past and present.

Leaving Indianapolis, the route lies westward, going in that direction on Washington street, which becomes the national road after leaving the city limits. The first fourteen miles of the run lie along the national road, paralleling the Pennsylvania Railroad and the Indiana Coal Traction Line through Bridgeport to Plainfield. The latter is a quaint old Quaker town, evidences of which are plainly delineated in each step through the little town, where is also located the Indiana Boys' School, a reform institution.

Out of Plainfield the Mooresville pike is followed a distance of seven miles, the first bit of pretty scenery along the route being encountered at Black Rock schoolhouse, located upon a hill, with the quiet, flowing White Lick half slumbering at its feet. Through Mooresville, a beautiful little town that is taking on metropolitan airs, and is surrounded by green-clad hills and dales, the run extends one mile south to Moon's Hill, the first real test of hill climbing. From the top of the hill the trip follows the Indianapolis and Vincennes railroad about five miles into Brooklyn, a sleepy village with quaint homes, and made famous by "Jap" Miller, known throughout the country by reason of the poem by James Whitcomb Riley, in which he is the subject.

The run from Brooklyn to Bethany Park, one of the best known summer resorts in Indiana, is accompanied by delightful scenery, and the air is laden with the perfume of the flowers that line the woodlands and hills. Another short run and the road reaches Blue Clay Hill, ascending which is a difficult task because of about eight inches of blue clay, kept unpleasantly moistened through the summer season, because of the small springs at the summit. South and west the course angles through Centerton to Blue Bluffs, and the remainder of the morning run is due south to Martinsville, the county seat of Morgan County. Martinsville is a health resort, and an excellent place to stop for dinner on the run. There are any number of healthful mineral springs, and there are several modern sanitariums and hotels, at the majority of which moderate prices prevail. The morning run is thirty-five miles, all along good gravel roads.

The most enjoyable portion of the trip comes after leaving Martinsville, good roads prevailing throughout the remainder of the trip, and fewer hills being encountered. Leaving Mar-

ON MOORESVILLE PIKE, SOUTH OF PLAINFIELD.

SALT CREEK, NORTHERN EDGE OF BROWN COUNTY.

tinsville, the route lies in a southeastern direction to Morgantown, going due east for one mile out of Martinsville, and taking the road between the High Hollow schoolhouse and church, which are opposite each other. The distance to Morgantown is eleven miles, and there is a touch of hill climbing before reaching that town that adds considerable zest to the trip. Among the largest hills are the Rock and Nebo Hill and Ridge. The scenery is more wild and picturesque than could be imagined existed in Indiana. Nebo Hill is nearly two miles long and easy to mount, from the summit the course lying around a ridge a distance of two miles.

For half an hour one can imagine one's self in the wildest regions of the mountains of backwoods Kentucky or Virginia. Log cabins built forty and fifty years ago, and still serving as the habitations of the farmers, are found in numbers. The land for the most part is poor, but the roads are good, and the air encountered is invigorating. The most typical of the log cabins found is that of Hiram Skeggs, who, with his family of ten children, lives in four small rooms. From this elevation, 800 feet above the sea level, and one of the highest elevations in Indiana, one can see Brown and Johnson counties, the former the least settled county in Indiana and containing but one railroad.

HIRAM SKEGGS' CABIN ON NEBO HILL SUMMIT.

Like the mountaineers of Kentucky and Virginia, too, the farmers of this picturesque section of Indiana are hospitable. They are the friends of automobile drivers, and if their humble homes contain anything that the driver may wish, it is his for the asking. There was a time when the farmers of this part of Hoosierdom looked with displeasure upon the motor vehicle, but that time has passed.

Farther along the tourist encounters two miles of dirt road, leading into Morgantown from the west. Here directions can be obtained as to the best routes toward Franklin, through Samaria and Trafalgar, sixteen miles. Before leaving Morgantown a side trip to Brown County can be made, into which few automobiles have ever been. The Brown County boundary is only two miles south from Morgantown, and if one desires one can have the pleasure of a one-mile coast into a small stream, passing through three counties.

From Morgantown to Franklin the course is northeast, crossing the Indianapolis Southern railroad at the edge of Morgantown, running four miles due east, and two north to Samaria, followed by two miles northeast through Trafalgar. The road from Trafalgar to Franklin contains a number of small hills, all of which can be mounted without a change of gear.

Like stepping from darkness into light is the run from Franklin to Indianapolis, for from the least settled portion of Indiana, in half an hour's time, one encounters one of the most up-to-date portions of the state. The twenty miles between Franklin and Indianapolis lie along the Madison road, a veritable speedway and passing through Whiteland, Greenwood and Southport, entering Indianapolis at the end of South Meridian street. At Greenwood will be found one of the largest tomato canning factories in the country, while near Southport there is a pleasant little park, where one may stop to rest for a few minutes if desired. The whole route is practically new and not more than half a dozen automobiles have gone over it in its entirety. Those who have gone over it say it is one of the most pleasant day's runs in all of Indiana, and it is sure to prove popular during the summer.

RECOMMENDS EXAMINATIONS BE REQUIRED.

INDIANAPOLIS, IND., May 21.—An event in Indiana automobile circles occurred last week, when the Chauffeurs' and Repairers' Association of Indiana was organized with fifteen charter members. The membership is limited to chauffeurs and repairmen living in Indiana. William Davidson was elected president; William Rugenstein, vice-president; Fred Wiltshire, secretary, and George Swinehart, treasurer. The Board of Directors is composed of Harry Bell, Minor Farley, Gus Krause and Jesse Sutherland.

The organization, among other things, will seek to have a law passed by the Indiana Legislature requiring that chauffeurs and repairers be examined and registered. Members are required to be more than eighteen years old, and must undergo a strict examination before being admitted to membership.

There will also be an effort made to regulate wages of chauffeurs and repairmen, both in the employ of individuals and garages. At present chauffeurs are paid according to the purse of the employer, and not according to ability. Wages on an average are about $15 a week, while one man in Indianapolis gets $100 a month and another $125 a month. There will be a minimum wage scale, which will not, of course, interfere with an employer paying as high an amount as he may desire.

SCORE ONE FOR THE AUTOMOBILE.

INDIANAPOLIS, IND., May 21.—The carefulness and efficiency of Indiana automobile drivers is shown by a report issued today by Dr. J. N. Hurty, secretary of the State Board of Health, showing that during the month of April not one death resulted from the automobile in the state. On the other hand, three deaths were due to horses, seventeen persons were killed by trains and two by trolley cars during the month. Not one serious accident due to an automobile occurred in the state during the thirty days covered by the report. The excellent showing made is held as a strong point in favor of the automobile, and on every hand police officials have words of commendation for automobile drivers. While there was some complaint of the speed limits fixed by the Indiana automobile law, since it went into effect there has been little inclination to violate its provisions.

CANADA'S RAPIDLY INCREASING TRADE.

According to consular reports there were imported into Canada 408 automobiles during 1905, valued at $489,000, the previous year's imports having been 362 cars, valued at $317,000. Last year the three concerns operating manufactured and marketed in Canada probably 200 cars. It is estimated that there are now in the Dominion about 1,500 cars. The demand is on the increase, and it is predicted that not only will the importations this year increase, but the home production will probably be 500. A new factory has been established at Chatham, Ont.

An English automobilist, on entering Russia with his car was arrested and detained for three days, until the police satisfied themselves that the small tire vulcanizer that he carried was not an infernal machine.

FOR AMERICAN AUTOISTS WHO TOUR ABROAD

By U. S. CONSUL-GENERAL FRANK H. MASON, PARIS.

AN automobile vehicle imported into France, for whatever purpose, is subject to a specific duty, which varies according to the nature of the motor, whether steam, electric, or hydro-carbon, and also whether the country from which it comes is or is not entitled by treaty to the minimum tariff on imports into this country. America, unfortunately, has no such treaty, and therefore motor vehicles originally made in the United States are subject to the general or maximum tariff rate, viz.: Automobiles, for persons, weighing 275 pounds or more, $11.58 per 220 pounds; motor bicycles, etc., weighing less than 275 pounds, $28.95 per 220 pounds. Electric automobiles are taxed as above on the vehicle and motor, and $4.14 per 220 pounds on the accumulators which they carry. When imported for touring or other temporary purpose, the duty so paid on a motor vehicle will be refunded at the frontier when the vehicle leaves France on presentation of the receipt given by the customs officer at the port of entry.

Nature and Uses of the "Triptyque."

As a means of avoiding the payment of this deposit at the frontier, many Americans and other foreigners avail themselves of the special privileges of the Touring Club de France, a powerful organization founded in 1890, which has now nearly 100,000 members, and central headquarters at No. 65, Avenue de la Grande Armée, Paris. A foreign member of the club, wishing to make a tour with his automobile in France, may obtain from its central office a permit for the temporary importation of his machine. The application for this permission is made on a prescribed form, accompanied by a deposit of the amount of duty, and the permit is at once issued under its authority, the club becoming, so to speak, responsible for its member during his sojourn in France. This license for free international circulation is known as "Le Triptyque," being printed on three leaves or sections, each bearing the same serial number. The first leaf is detached for the customs officials at the port of entry to France, the second is detained by the customs officials at the point of final departure of the car from France, and the third section is retained by the member to be presented finally, personally or by mail, to the touring club, whereupon his deposit is refunded at once without the delay and inconvenience which so often attend repayment of such a deposit at the custom-house.

Among the other advantages of the "Triptyque" for an American is that he can obtain it by correspondence in advance, and then on landing he is enabled to pass the custom-house at once with his auto without annoyance or payment of money.

In France, Germany, and Belgium the "Triptyque" is valid for a period of one year from its date; in Italy and Switzerland for six months only. During the period of such validity the holder of a "Triptyque" may make any desired number of trips into and out of the country designated, unless it be Germany, where only one voyage during the year is permitted. The "Triptyque" is not recognized in Spain or Austria, and is not necessarily in Holland or Great Britain.

The License to Drive an Automobile.

Having secured the admission of his car and the permission to have it placed in circulation, the next important step for the visiting motor tourist should be to obtain a "Certificat de capacité," or license to drive an automobile in France. Theoretically, this is made somewhat easier for foreigners than for a native of the country, but this courtesy, which seems so gracious at the outset, is no protection against the results of ignorance or incapacity, and it is therefore advisable that every American who desires to traverse this country with an automobile, either imported or purchased here, should take the full examination and so qualify himself as to be entitled to all the rights and privileges that a certificate of capacity can secure.

An application for a license or "permis de conduire" should be written on a sheet of stamped paper of the denomination of 60 centimes (about 12 cents). It should be addressed to the prefect of police, give the full name and address of the applicant, and embody in simple, direct form a request to be permitted to pass the examination required to obtain a certificate of capacity to drive an automobile weighing —— kilograms, with a petroleum motor, and of the system —— (giving the name of the maker). With this letter of application should be inclosed the passport of the applicant (viséed by an American consul in France if issued from any other office than the American embassy at Paris) and his birth certificate, or, if that is not available, a police certificate which is issued from the prefecture of the police, 36 Quai des Orfèvres, called a "registre d'immunité." If the applicant is a resident of France he should likewise inclose with his application a certificate of residence from the commissary of police in the precinct where he resides, attested for identity by two witnesses, and finally two unmounted photographs of himself.

Practical Chauffeur Examination

Within a fortnight the applicant should receive an official letter requesting him to meet the examiner at a designated time and place, to which he should go in an automobile of the same type as the one described in his application. This examination is a practical one on broad lines laid down in a circular of the minister of public works. The candidate must maneuver the machine in the presence of the examiner (an engineer of the mines department or his delegate). The examiner is directed to pay special attention to the prudence, coolness and presence of mind of the candidate; his judgment of distance, steadiness in steering, ability in changing, as occasion may require; the speed of the vehicle, application of brakes and starting again, and his general ideas about traffic in street and road so far as appreciating the requirements of other vehicles in passing, preceding, following, and crossing. Where steam is the motive power the examination varies somewhat and some theoretical knowledge is necessary.

If the trial is satisfactory and shows the applicant to be capable of managing his machine acceptably, the examiner will generally give him at once a temporary license authorizing him to drive in and about Paris until the permanent "permis de conduire" is issued, which latter is good for the whole of France. This certificate and receipt of declaration describing the car should be always carried by the automobilist when traveling in his vehicle, as they may be called for at any moment, and failure to produce them might subject the delinquent to serious embarrassments.

Numbers, Lights and Speed.

If the automobile is capable of a speed exceeding 30 kilometers (approximately 18 miles) an hour, it must bear in front and rear a tag painted in white on a black ground, and showing its number and the distinctive letter which has been given to the machine to indicate the place or district headquarters where it has been registered. The dimensions of these letters and figures are carefully prescribed by law and regulations. The tags must be so placed as to be clearly

visible, and the rear one so illuminated at night by a reflecting light as to be read as easily as by day. The rear tag may be replaced at night by a lighted lantern bearing the number and letter of the vehicle.

The speed of an automobile in France is limited by governmental decree to 30 kilometers (18 miles) an hour in open country, and 20 kilometers (or 12 miles) an hour in cities and towns. Any speed exceeding this, although it may be leniently considered by the police, is contrary to law and, in case of accident resulting from the excessive pace, liable to get the offender into serious trouble.

A Word of General Advice.

In case of accidents on the road it is of the highest importance that the foreign automobilist should control his temper and preserve the courtesy of bearing toward officials and other persons, for the lack of which nothing atones in France. If another person has been the cause of or in any way concerned in the accident, his name and address, together with those of any witnesses present, should be obtained and written down, the automobilist giving in return his own.

In case indemnity is voluntarily paid for an injury, either real or imaginary, a receipt should be taken, showing that the payment involves full immunity from subsequent proceedings of any kind. Finally, if signaled to stop by a policeman or other official, the tourist should always obey, treat the delay as good-naturedly as possible, and if summoned to appear before a court he should never fail to do so, either in person or by attorney.

When an American hires in Paris or elsewhere in France an automobile for the purpose of making a tour in this or adjoining countries, and when (as is usually the case) the person or firm furnishing the vehicle supplies also a chauffeur, a carefully drawn contract should be made and signed to define clearly the responsibilities of both parties. As this contract may afterward become the basis of proceedings before a French court, it should be written on stamped paper and cover every point that may be likely to come into dispute.

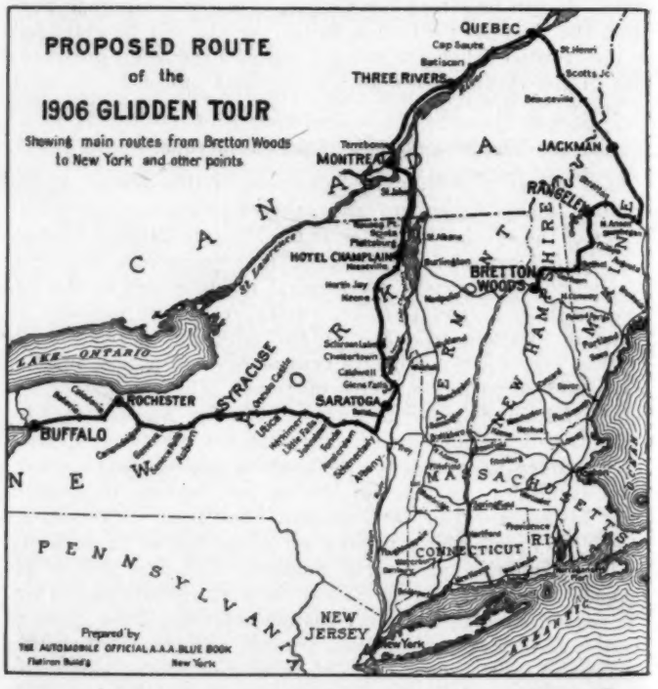
A JERSEY ROMANCE OF THE AUTOMOBILE.

NEWARK, N. J., May 21.—An automobile romance will culminate next September in the marriage of Miss Ella Krueger, a daughter of former Judge Gottfried Krueger, the wealthy brewer, and Inglis M. Uppercu, a member of the Motor Car Company of New Jersey. Miss Krueger and her family sail for Europe next Monday, and August 15 Mr. Uppercu will join them. Miss Krueger moves in Newark's best social circles, and her hand was sought by suitors on every side. But Mr. Uppercu, through whose firm the former judge purchased a car for his daughter's use, succeeded in winning her heart, the courting at first being done in an automobile. A year or more ago Judge Krueger's children—he has seven, some married and some living at home—became interested in automobiling. The judge bought them all cars, including Miss Ella Krueger. The latter's was an Autocar, for which the Motor Car Company has the New Jersey agency. In the demonstrations preceding the purchase Mr. Uppercu was Miss Krueger's instructor, and after the sale was effected he continued giving her lessons. The suspected engagement was finally formally announced. Mr. Uppercu is well liked by his business associates, and the wedding next fall will be one of the social events of the season. Mr. Uppercu is a charter member of the New Jersey Automobile and Motor Club.

Accurate estimates of the consumption of rubber by the principal countries of the world last year placed the United States at the head of the list, with 26,470 tons. Germany was next, with 12,800 tons, and Great Britain with 10,000. What proportion of this enters into the construction of tires the Government reports do not state, but is is large.

DETAILS OF THE A. A. A. TOUR.

While the information which thus far has come from the Touring Committee of the American Automobile Association has not given the positive details of the route, enough has been made public to supply the general outlines of the 1906 run, the principal feature of which will be the contest for the Glidden trophy. The Chicago-Buffalo section of the tour will not be concerned with the Glidden trophy, the rules concerning it not beginning until the departure from Buffalo. Chairman Paul Deming of the Touring Committing, having found it impossible to make a preliminary tour of the route, has designated other members of the committee to do the task, which is now in progress. It is probable that all the details will be made public in the next week or ten days, but herewith are given a map that will be found substantially correct and also a tentative schedule and mileage from Buffalo to Bretton Woods.



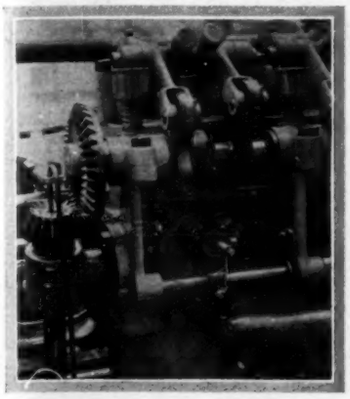
Probable Itinerary from Buffalo to White Mountains.

Probable Dates	Points Covered	Miles.
Thursday, July 12	Buffalo to Rochester	75 1-2
Friday, July 13	Rochester to Syracuse	97
Saturday, July 14	Syracuse to Saratoga	154
Sunday, July 15	Remain in Saratoga.	
Monday July 16	Saratoga (to Schroon 63 miles) to Lake Champlain Hotel	135
Tuesday, July 17	Lake Champlain Hotel to Montreal	85
Wednesday, July 18	Remain in Montreal.	
Thursday, July 19	Montreal to Three Rivers	94
Friday, July 20	Three Rivers to Quebec	81
Saturday, July 21 and Sunday, July 22	Remain in Quebec.	
Monday, July 23	Quebec to Jackman, Me	112 1-2
Tuesday, July 24	Jackman to Rangeley Lakes	80
Wednesday, July 25	Remain at Rangeley.	
Thursday, July 26	Rangeley Lakes to Bretton Woods	115
	Total Mileage	1,029

A movement is on foot in Kansas City to raise the license fee for dramshops from $750 to $1,000 or $1,250 a year. There are now about 625 saloons in a city of 300,000. The county gets $500 of the license fee as a macadam road fund and has built some 200 miles of road during the past ten years. The increase of license will tend to reduce the number of dramshops and hence the road fund, practically all of which comes from the city.

SELF-STARTING IS A FEATURE OF THIS CAR

EMBODYING a number of unusual features, the cars built by the Matheson Motor Car Company, Wilkes-Barre, Pa., are attractive from the viewpoint of the engineer as well as to the automobilist. The Matheson is built in three models, so far as the chassis is concerned—30-35 horsepower, 40-45 horsepower and 60-65 horsepower—the popular modern power ratings—practically the only differences in the three models being in the dimensions. Many different styles of bodies can be fitted, however, such as limousine, landaulet, victoria or the popular modern two-passenger body, the latter being listed as a regular model.

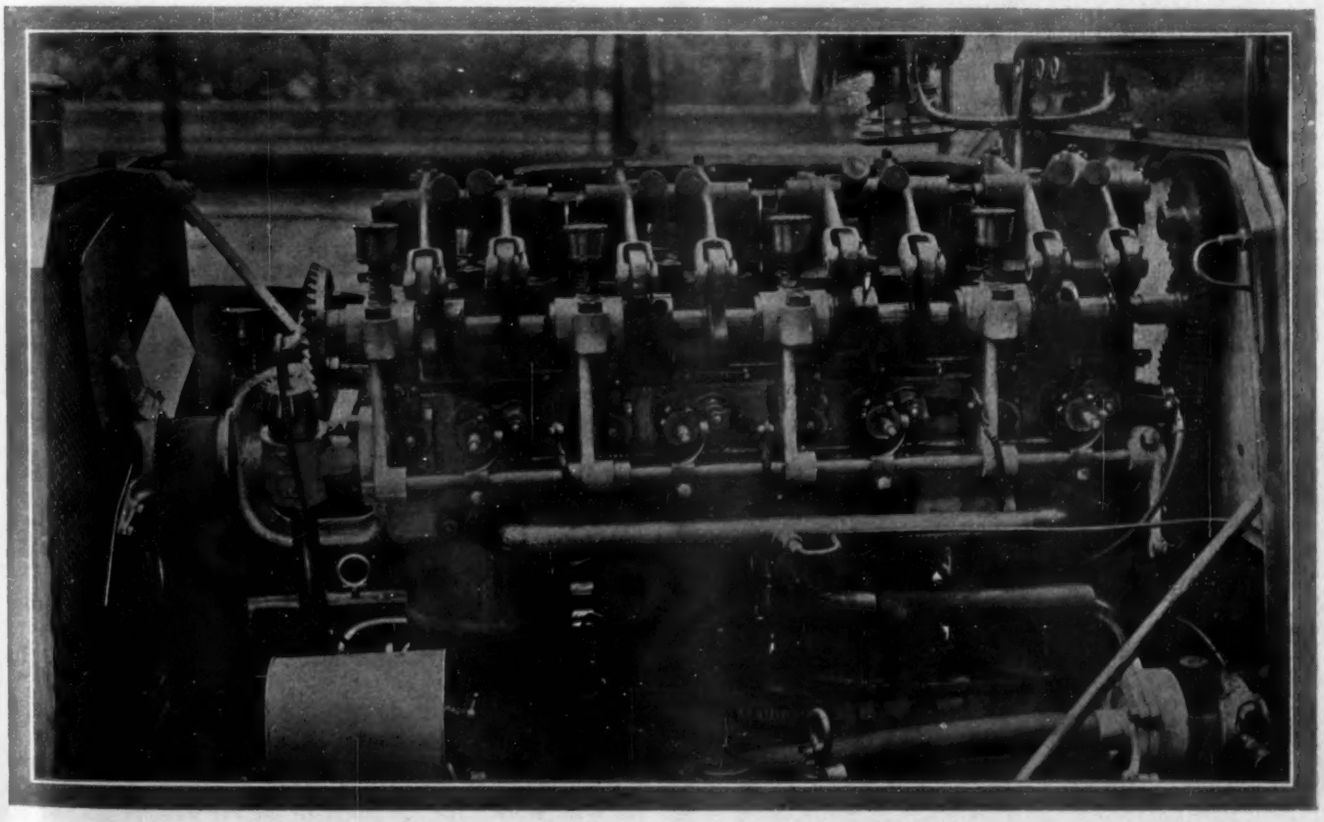


VALVE AND IGNITION GEAR.

The Matheson motor is of the four-cylinder vertical four-cycle type, water-cooled, and is normally run at a rather low speed. The cylinders are individually cast and have integral water jackets; but the heads, of noticeably solid construction, containing the valve chambers, are separate castings bolted to the cylinders. The heads are thoroughly water jacketed, waterports permitting water to flow from cylinder to head and vice versa. The valves, all mechanically operated, open directly through the heads and are operated by rocker arms, whose outer arms carry large steel rollers bearing on cams on the single camshaft that operates all the valves. The camshaft runs in bearings just under the rocker arms and is driven by a vertical shaft and bevel gears, the shaft and cams all cut from a single piece of steel, avoiding the necessity for pinned or keyed cams. The rocker-arm rollers are very large, so that they rotate slowly on the cams and do not wear with any noticeable degree of rapidity, either upon the contact faces or on their pins. Valve springs are all exposed and can be easily reached for removal if necessary. The valve chambers are surrounded by water spaces of unusually large size, and the jackets extend all the way round the chambers, the result being that the valves are kept very cool, comparatively speaking, and are remarkably free from pitting. The manufacturers state that under ordinary conditions the valves never require grinding. The position and arrangement of the valves and the valve-operating mechanism will be readily understood from the accompanying illustration showing these parts. Inlet and exhaust valves are of the same size and are interchangeable.

SPRING HANGER OF CAR.

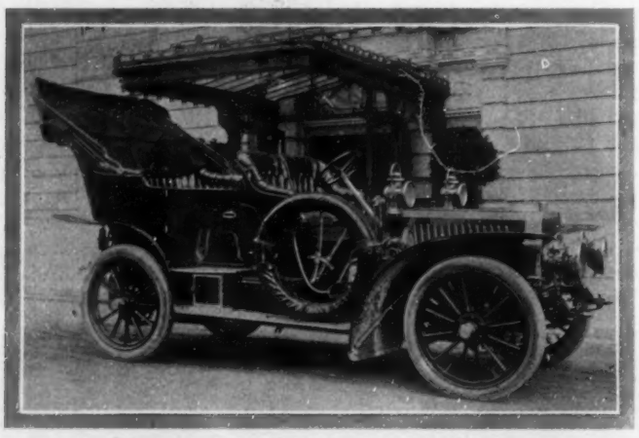
Ignition is effected by a mechanical make-and-break system, the igniters being tripped by cams carried by the valve camshaft. The spark occurs in the combustion chamber, not in a valve pas-



VALVE AND IGNITION SIDE OF MATHESON 40-45 HORSEPOWER SELF-STARTING MOTOR.

sage, and gives an exceedingly large and hot spark. An interesting fact in this connection is that the sparking points, both stationary and moving, are of plain steel, having no platinum or other non-oxidizing tips. The makers state that the steel points wear almost indefinitely and give no trouble, owing largely to the complete combustion of the mixture and the freedom from carbon deposits. The time of ignition is fixed while running, being slightly advanced; in starting the motor, however, the spark is automatically retarded and back kicks avoided. Current is furnished by a magneto for regular running, and by dry cells for starting; the magneto is gear driven from the crankshaft and will furnish a sufficiently strong current to enable the engine to be started by cranking without the use of the battery. One of the special features of the Matheson engine, however, is that cranking is not usually needed, the engine being started on the spark from the seat; for this purpose the battery is, of course, necessary. The magneto is switched in as soon as the motor is running.

While most four-cylinder motors fitted with jump-spark ignition can be started on the spark, there is much uncertainty in the operation, and there is a possibility of the motor starting backward. The Matheson starting device is designed to make starting from the seat as nearly certain as possible and to avoid any chance of starting backward. A spindle, gear driven from the camshaft, runs along the engine from end to end close to the



MATHESON 40-45 HORSEPOWER TOURING CAR.

igniters. This rod can be slid longitudinally in its bearings by means of a foot button on the dashboard. The rod carries four fingers, one for each igniter, and these fingers are so located that when the rod is moved forward by pushing the foot button, the igniter will be tripped on that cylinder, which is just ready to commence a down stroke after having compressed a charge. The right igniter must always be tripped, and as long as there is a charge in the cylinder the engine will start—assuming, of course, that everything is in good order. The fit of the piston and rings is given special attention in order that compression may be held for as long a time as possible; it is stated that the Matheson engine will often hold compression over night. The entire engine is designed with the idea of avoiding distortion under heat; the cylinder casting is round, having no pockets or irregularities cast on it, and expansion is thus kept equal at all points. Three rings are fitted, but the fit of the piston itself is mainly depended on to retain the compression.

The engine drives through a multiple disk clutch, a three-speed sliding-gear transmission, countershaft and side chains to the rear wheels, which are, of course, mounted on a dead axle. No less than fifty steel disks are used in the clutch. This gives a frictional area so great that the wear is practically negligible. Ordinarily no mechanical adjustment of the clutch is necessary, and a curious and interesting method of regulating the slip is used. If the clutch is found to be slipping too much before taking hold, the oil in the clutch case is thinned by the addition of a little kerosene, or else thinner oil is put in. If the clutch takes hold too quickly thicker oil is used. The idea is that a thin oil allows the disks to get into contact quickly because the thin oil is readily squeezed out, while a thick oil is more difficult to work out and the slip is consequently continued longer.

The gears and shafts of the three-speed sliding-gear transmission are of chrome-nickel steel, and all the parts are made very heavy and strong. The shafts run on annular ball bearings. A single progressive lever controls all the gear positions. A heavy sheet-steel pan extends from the front end of the frame, just under the radiator, to the rear end of the transmission gearcase, and effectually protects the working parts from dust and mud. A trap-door just below the engine permits the removal of the lower half of the crankcase and the inspection of cranks and connecting rods. The bevel driving gears and the differential on the center of the countershaft are inclosed in a rearward extension of the transmission gearcase and run on ball bearings. Both front and rear axles are steel forgings of square section. The steering knuckles are of the Lemoine type and turn on annular ball bearings.

Brakes are fitted to the countershaft and to the rear wheel hubs. The countershaft brakes are operated by pedal, and are the regular service brakes; they may be water-cooled if desired, water receptacles being provided for the purpose. The hub brakes are intended for emergency use and are set by a side lever. In applying the emergency brakes the countershaft brakes are set automatically at the same time, the connections being interlocked. A ratchet and pawl arrangement in the rear hubs acts in place of the old-fashioned sprag, to keep the car from running backward down hill, and is controlled from the driver's seat.

The carbureter is of a peculiar type, having no float; gasoline is fed to it by a gear-driven rotary pump, the excess being returned to the tank by gravity. An interesting feature of the carbureter is that there are three spray nozzles all under the control of a single automatic valve. At low speed the valve opens sufficiently to bring only one spray into use; and as the engine speed increases and more fuel becomes necessary, the second spray is also opened up, all three being used only for very high speeds. The engine runs under governor; a throttle in the supply pipe between the carbureter and the engine can be controlled by a lever on the steering wheel, and also by a small pedal.

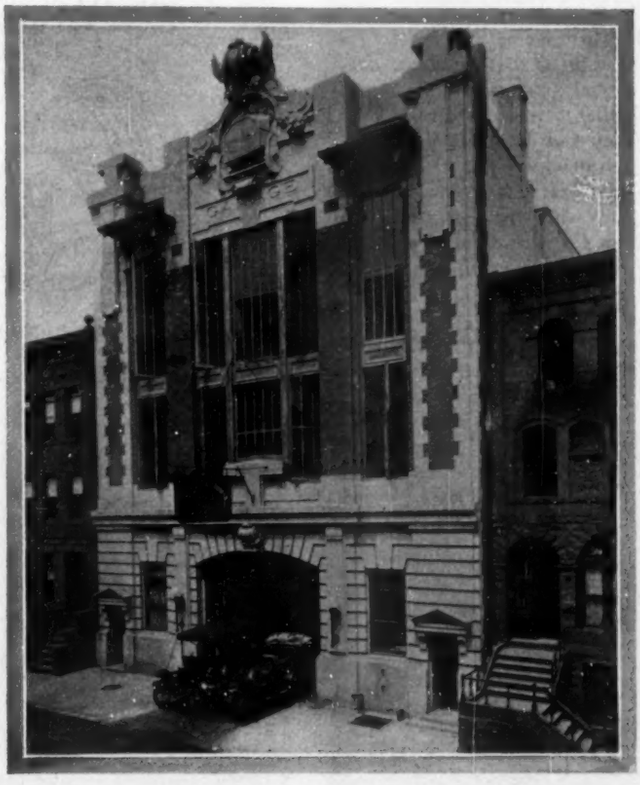
The frame, of the usual tapered channel form, is of nickel steel and is carried on four semi-elliptic springs. One of the interesting features of the car is the manner in which the ends of the springs are attached to the frames. Instead of the customary curved spring hangers, each end of each spring is shackled to a lug which is free to slide fore and aft on a short piece of steel rod, the lug being bored a sliding fit for the shaft. The rods at the front ends of the front springs and at the rear ends of the rear springs are riveted at their bases to the ends of the main frames, from which they extend; at the opposite end the rods are supported between brackets riveted to the frames. With this arrangement it is impossible to put a twisting stress on the springs, as the sliding lugs can rotate as much as necessary on their shafts to take care of the relative motion of axle and body when, for instance, one wheel drops into a deep rut while the other remains on the level road. The alternate lengthening and shortening of the springs as they rise and fall under the influence of rough roads is, of course, taken care of by the sliding lugs. The rear springs cannot transmit any driving power from the rear axle to the body under this arrangement, so stout radius rods are provided for this purpose. The front ends of the front springs do not slide on their rods, the lugs being free to turn only. The manufacturers state that this arrangement of the spring hangers saves many broken springs.

The body is fitted with every convenience for touring and is extremely roomy and comfortable; the total seating capacity is seven passengers, the rear seat being wide enough for three and two folding seats carrying two more, in addition to the two in the front seats. The equipment of the car includes gas and oil lamps, the former being large and powerful.

A TYPICAL MODERN NEW YORK GARAGE

IT was not very long ago that the proprietor of a garage in the metropolitan district thought he had an establishment worth boasting about if he occupied the entire ground floor of an abandoned livery stable, perhaps, for storage, repair work, office and salesroom. Times have changed, however, with the growth of the industry, and the idea of what constitutes an up-to-date garage has changed also; how great the change has been is indicated, in one case at least, by the new garage recently opened on Ninety-third street, between Central Park West and Columbus avenue, by Graham & Goodman.

The garage is built throughout of reinforced concrete and is, of course, fireproof, very little wood being used. There are three stories and basement, 100 feet deep and 50 feet wide, and at the rear is a wing or "L" 30 feet by 40 feet. In the basement, which is the full size of the building, are the electric motors for the huge elevator that runs from the bottom to the top of the building and for the air-pump, by which a constant air pressure, for inflating tires, is automatically maintained in a receiver. The main floor is used for live storage and the wing is set apart as a shop for chauffeurs and owners who desire to do their own work on their cars. The ground floor is used for the live storage of cars that are most frequently in use. On this floor are located the offices, at the front, near the great doors, while opposite the offices is a comfortable and convenient room fitted up for the use of ladies—and the room is much used. The charging plant is on the main floor also, with a switchboard for charging fifteen electric vehicle batteries at the same time. A large turntable just in front of the elevator doors permits a car to be turned in any direction that may be desired by the operator.



THIS GARAGE HAS AN ARTISTIC AND IMPOSING FRONT.

The main area of the second floor is used for live storage, while the wing is given over to the chauffeurs. Here are steel-ventilated lockers around the walls, bathroom with shower bath and all the latest conveniences of the plumber's art, that will be appreciated by chauffeurs after a hot, dusty run. The third or top floor is given over to repair work, and on it are facilities for doing work of all kinds, up to the practical rebuilding of a car, including the body work. Forging, machine work, body building, upholstering, painting, battery work, are all done on the top floor. At the time the accompanying photographs were taken twelve cars were having new bodies built and undergoing a thorough overhauling; this gives a good idea of the capacity of the department, though there was ample room, apparently, for simultaneous work on twice that number of cars, in addition to minor repair work.

A great deal of glass is used in the building, and the natural lighting is consequently good; and for night work and getting under cars there are numerous electric lights. Electric portable drills are used in the machine shop with excellent results. Washing stands, with revolving washers overhead, are on every floor. The total capacity of the garage is 250 cars, and machines of every type—gasoline, steam and electric—can be cared for. While the interior of the garage is severely plain and businesslike, the street front is ornate. The large area of glass in green metal framing, and the automobile in cement work that tops the whole, give the building a distinctive appearance.

GROUND FLOOR OF GARAGE SHOWING ENTRANCE TO ELEVATOR.

LOOKING TOWARD FRONT OF BUILDING ON SECOND FLOOR.

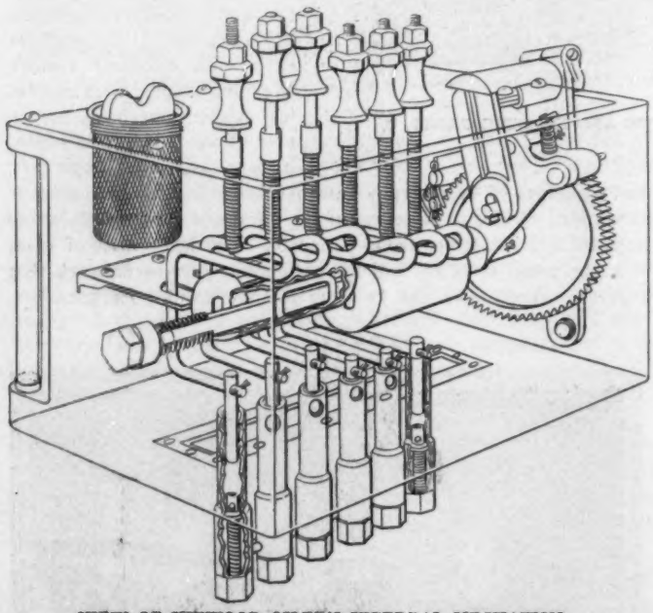
A MOTOR-REGULATED OILER.

The Kinwood oiler is a mechanical oiler and can be driven in any of the usual ways. The operating connection being at the top of the oiler, the necessity for stuffing-boxes is dispensed with, as it is the only opening in the body, and, in connection with another arm in the body, operates the pawl-and-ratchet device. Individual pumps, corresponding to the number of lead tubes, are secured to the bottom of lubricator and operated in batteries of two or more by the revolving eccentrics so mounted on the ratchet shaft that the downward stroke has a quick action, regardless of the speed of motor, with the object of insuring a strong pressure stroke at all speeds.

The ratchet wheel and dogs, which appear to be the only parts subject to wear, are proportionately large, with wide, hardened wearing surfaces. The double dog arrangement, moving one half tooth at each revolution of the cam or driving shaft, does away with the worm gear or any special arrangement for speed reduction from motor to oiler, whether driven by eccentric or pulley. The plungers are each connected by yoke projecting through the top of oiler, and the action of each pump can be seen at all times, and is regulated from the outside by means of lock nuts, without stopping the motor, and, when desired, any pump can be worked by hand without changing the regulation. The body has gauge glass at one corner and filler opening is provided with strainer. One peculiar feature of construction is that no screws are used inside of body.

The oilers are made in size from two feeds upward, with brass, aluminum or iron bodies. They can be mounted on the dash or under hood, as desired. A special feature set forth by the manufacturers is that the Kinwood is an oiling system that will deliver to each bearing, whenever the motor is running, any desired quantity of oil in proportion to the speed of the motor. Each feed of the oiler can be regulated from half a drop to fifteen drops for every 320 revolutions of the driving shaft. It will start the instant the motor starts and ceases feeding instantly the motor stops.

Among the other claims made for the Kinwood is simplicity and strength, no part being subjected to unnecessary wear; not

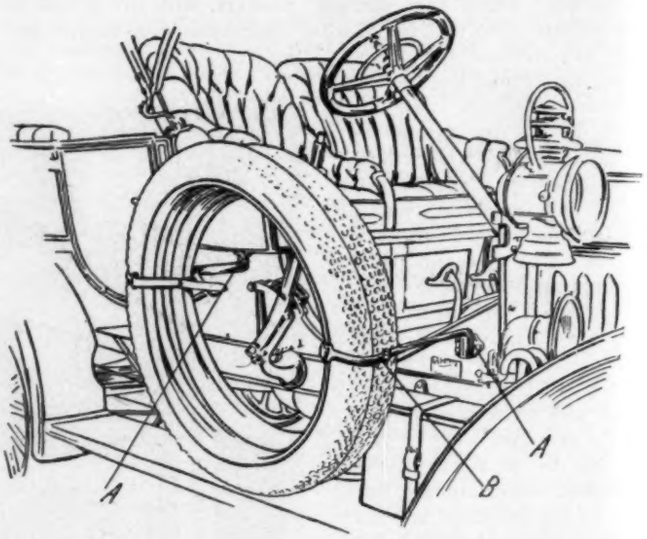


VIEW OF KINWOOD OILER'S INTERNAL MECHANISM.

easily disarranged, but easily accessible, if necessary; large oil capacity in proportion to bulk, gives pressure when needed and as needed by each individual lead, and having no stuffing-box below the oil level cannot leak. This oiler is one of the latest of the well-known line of Kinwood specialties produced by the Kinsey Manufacturing Company of Dayton, O.

REMOVABLE TIRE CARRYING DEVICE.

Until the pneumatic tire has been made invulnerable, or has been supplanted by some less fragile device, the prudent automobilist will never tour without at least one spare tire, and will feel more comfortable, on long trips, if he has two. The problem of carrying tires, however, is a difficult one, and numerous solutions have been tried with varying degrees of success. One of the latest devices, and one that



is apparently exceedingly practical, is the McKinney tire holder, the general agents for which are the New England Branch Peerless Motor Car Company, 178 Columbus avenue, Boston. This holder, though shown in the line engraving with two tires, carries a single tire equally well, without extra parts or unnecessary bulk. Two brackets, *A A*, attached to the body of the car, form sockets into which the holder arms fit. Each arm has a pair of jaws which embrace the tire or tires; and by means of the hinge, *B*, the jaws can be made to fit either one or two tires, of any size. The jaws terminate in loops through which the straps are passed to hold the tires firmly in place. In case the car is to be used for short runs, making the carrying of an extra tire unnecessary, the arms can be removed from the sockets without removing the tire from the jaws, and the whole can be replaced when wanted in a very short time. The arms are of course made long enough to carry the tire or tires clear of the gear-shifting and emergency brake levers.

SELECTIONS FOR A. A. A. LAW COMMITTEE.

Secretary S. S. Gorham of the A. A. A. has announced the names of thirteen members of the Law Committee of the national body. The list is not complete as yet, for it is Mr. Gorham's desire to make it a thoroughly national committee. The men just appointed will act as sub-chairmen in their districts, and will work in conjunction with Mr. Gorham in endeavoring to get a national automobile law. Those chosen follow: Osborne Yellott, of the Automobile Club of Maryland; Homer H. Johnson, of the Cleveland Automobile Club; A. H. Darnell, of the Atlantic City Automobile Club; Frank B. Finney, of the Portsmouth (O.) Automobile Club; C. H. Burras, of the Austin (Ill.) Automobile Club; J. J. Seeds, of the Automobile Club of Philadelphia; James F. Drought, of the Milwaukee Automobile Club; W. P. Richardson, of the Long Island Automobile Club of Brooklyn; S. P. Irwin, of the Bloomington (Ill.) Automobile Club; F. W. Battershall, of the Albany (N. Y.) Automobile Club; W. R. Hickox, of the Kankakee (Ill.) Automobile Club; W. H. Chase, of the Wachusett (Mass.) Automobile Club; F. H. Hurtubis, Jr., of the Massachusetts State Automobile Association.

ACTIVITIES AMONG THE AUTOMOBILE CLUBS

Missouri's Farmers Assist the Automobile Clubs.

KANSAS CITY, May 17.—The fact that farmers dislike automobilists in some states and go so far as to do them bodily harm, is regarded with nothing but surprise by the Missouri farmer. He has the right idea of the automobilist. To the farmer, the pneumatic tire means the coming of good roads, and so, instead of opposing the automobile, he is forming alliances with it.

The first move of this kind has been made in Jackson county, in which this city is situated. Half a dozen towns in the county have importuned the Automobile Club of Kansas City to take the initiative for more macadam roads, and for the repair of those already in existence. In this course the farmers have promised their heartiest support. As the county court, which has supervision over the expenditure of the road money, holds its sittings mainly in Kansas City, the farmers believe the club has a better opportunity to present the case of roads improvement. Arrangements are now under way for a meeting to be held by the club in a few weeks to make plans for an active campaign. While there are some excellent roads in the county, the approaches leading from the city are almost uniformly bad.

While the club is aiding the man with the horse and buggy, it has a nice little axe of its own to grind. Good eating houses are few and far between, and the accommodations for the tourist are meager. The club wants a farmer about twenty miles from the city to fit up a place where one may get a good meal. As the "lid" is screwed and bolted down in Missouri on Sundays, the small towns present nothing but a pitying look to the automobilist who is hungry after a long tour. Already Oak Grove, a small town some thirty miles from here, has agreed to establish a place of this kind if the club will get the roads repaired to its borders. The club will thus be killing two stones with one bird, which isn't exactly as the old saying expresses it.

W. W. PICKERILL PLACING FIRST DANGER SIGN ON PACIFIC COAST ROADS.

Automobile Club of Germantown Has an Election.

PHILADELPHIA, May 21.—There was a big turnout at the artistic clubhouse of the Automobile Club of Germantown tonight, the occasion being the annual election, supplemented by a supper and smoker. As there was but one ticket in the field, there were no contests, the new officers being: President, Thomas B. Prosser; vice-president, Charles H. Thompson; secretary, Mark B. Reeves; treasurer, Robert P. Hooper; new members of the Board of Governors, John B. McIlhenny. Clarence B. Collier and William E. Helme. The annual reports of the board of officers showed the club to be in fine condition financially.

Energetic Club Action Against Reckless Driving.

TACOMA, WASH., May 17.—The Tacoma Automobile Club, at its last meeting, passed a resolution, requesting the chief of police to enforce the State automobile speed law. This action is the result of a number of aggravating cases of fast and reckless driving, which is placing the entire automobile contingent here in disrepute. The State law is all that the city authorities are permitted to operate under, a maximum speed for cities being placed at twelve miles an hour. Two well-known men, who, however, are not members of the club, have been acting very badly on the road of late, and only last Sunday morning one of them ran into a tree, completely demolishing his machine, and the wonder is that none of the three occupants of the car was killed. The accident is recognized as being the result of reckless driving, and the police force, as well as the club, is aroused. The other man is a hotel owner, whose chauffeur is recognized as being exceedingly reckless, and both have boasted about deeds on the road. The club is willing to lend any assistance in procuring evidence against these men.

At its meeting the club devoted considerable time to good roads matters. In this particular, it is the only live automobile organization on the North Pacific coast. During the past week it has had a man out on the prairie road, reducing some of the rough spots. W. W. Pickerill, president of the club, announced that he had that very day been out and nailed up the first automobile danger sign on the North Pacific coast. It is at the top of a dangerous hill towards American Lake. The club has had a number of signs painted according to the code of the American Automobile Association, and the officers of the club were authorized to engage a man to place them in their proper locations in the country.

The club is now in a flourishing condition, the present membership of 64 being twice that of automobile owners in the city last year. Tacoma also boasts of being the most progressive city in this section of the country and owns more large cars than either Seattle or Portland. The opportunities for automobiles here are the very best, the only trouble being the lack of a good route to the prairie roads. An entirely new and better route than the old one will be secured when Sixth avenue has been paved, which will connect with Union avenue, and thence to South Tacoma. Sixth avenue can be reached by an easy paved grade.

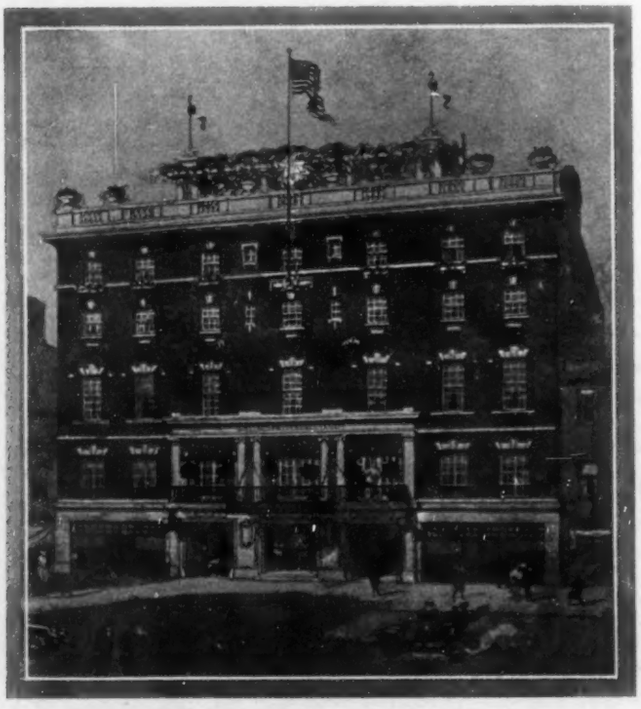
Gates' Mills Hill Climb Set for May 30.

CLEVELAND, O., May 21.—Decoration Day will witness the second annual hill-climbing contest under the auspices of the

Cleveland Automobile Club, on the Gates' Mills hill, the scene of last year's contest. The hill is an ideal grade for a contest of this kind. It is over a mile long and has an elevation of 450 feet in the mile, which is considerably more severe than either Eagle Rock or Dead Horse hill. Last year, with the hill in very rough condition, Frank B. Stearns, with a 40-horsepower stripped touring car, won the mile contest in 1:19 4-5. Gates' Mills lies in a beautiful valley 16 miles east of Cleveland, and the club has arranged to meet in a body and have a parade to the resort. The hill has been graded and leveled off during the past few weeks, and it is in much smoother condition than it was last year. Local dealers are much enthused over the prospects of the hill climb and already there are a number of entries in from the local people. Entries close Monday, May 28, with Asa Goddard, at the clubrooms, Hollenden Hotel.

Chicagoans Are Up and Doing These Days.

CHICAGO, May 21.—Photographs from the architects' plans show the new home of the Chicago Automobile Club, to be



ARTISTIC FRONT OF THE NEW CHICAGO A. C. HOME.

erected on Plymouth place, between Jackson boulevard and Van Buren street, to be a handsome five-story structure of Colonial type. Provision is made, not only for the special needs of automobilists, but also for the wants of members who may desire to have at hand the privileges commonly provided in clubhouses of high class. Situated in the heart of the office building and retail centers, it has been thought advisable to devote a large amount of space to the cafés, of which three will be provided. While the interior furnishings and decorations will be unique and handsome, comfort will be the first consideration. The garage will accommodate about ninety machines. Storage for cars will be in a building in the rear, separated from the main building by a brick fire-wall, extending from the basement to the roof.

The membership of the club is nearly 600, forty having been taken in during the past month. June 12 will occur the annual Orphans' Day run, and hundreds of the little ones will be given a treat. President Farson has added C. A. Coey and B. H. Marshall to the Racing Committee of the club, and Jerome A. Ellis has been made an additional member of the Runs and Tours Committee. The touring contest will probably be held in August, with the route from Chicago to Milwaukee to Rockford and back to this city. Ten prizes will be included in the list, among them being the Ralph Temple cup, which will go to the winner. Other prizes will be awarded for various features, such as reliability, economy of fuel consumption, and endurance. A theater party was held at the Garrick Theater Friday, and features of interest to enthusiasts were introduced in "Mexicana." A tour to Highland Park is on the calendar for May 26

Portlanders, of Oregon, Granted More Speed.

PORTLAND, ORE., May 21.—The opening of the automobile season in the city of Portland and vicinity has been marked by auspicious circumstances. The Automobile Club of Portland held its annual meeting some two weeks ago and appointed a committee to visit the city council and lay before that august body a desire for a rearrangement of the speed limits. A speed of eight miles an hour has prevailed in the corporate limits of the city, which was not very pleasing to enthusiasts, who argued that it was impossible to adhere to this law at all times. A graded speed limit in certain districts was asked for, that outside of the fire limits being fifteen miles an hour. The ordinance was presented to the council and passed with hardly a dissenting vote. The city council has learned that the automobile has come to stay, which entitles owners and operators to certain rights and privileges in the matter of legislation.

The election of officers resulted in the selection of the Hon. Robert D. Inman as president. The retiring president, Sol Blumauer, was placed on the board of directors. Action by the club which met with instant approval on the part of the members present was the repeal of the rule against permitting dealers to serve on the board of directors. This rule was incorporated in the bylaws at the club's inception owing to the belief that dealers would prove antagonistic to each other and would bring their differences into club matters, but this has been found to be wrong. Henry M. Covey and Harry L. Keats, identified with the trade, were elected members of the board. Secretary David T. Honeyman and Treasurer Dr. C. B. Brown were re-elected to their respective offices.

Pennsylvania Clubs Working for Trans-state Highway.

PHILADELPHIA, May 21.—Interest in the proposed trans-Pennsylvania highway between this city and Pittsburg is increasing day by day. At the Good Roads Association's office a force is at work sending out appeals to every man of prominence who would be in any way benefited by the new road. Already the responses are beginning to come in. The York County Automobile Club is at work in an effort to arouse interest in the section of the road which bisects York county. The Lancaster Automobile Club is also busy along the same lines.

Gettysburg citizens and farmers along the route, both east and west of the great battlefield, have also been heard from, and a special appeal is in preparation calling attention to the facts that Gettysburg has become the shrine of a nation, that upward of 100,000 tourists visit that place annually, and that the completion of the great road will mark the beginning of a great tide of travel to the battlefield from East and West.

One of the first moves of the executive committee of the association, of which President Dick of the Automobile Club of Philadelphia is chairman, will be the calling of a convention in Harrisburg, of the County Commissioners of all the fourteen counties through which the highway will run, and endeavor to bring about combined action on their part in securing from the state good roads appropriation their full shares, and the devotion of the bulk of their counties' proportion of the money to the improvement of the new highway.

President Woodworth Succeeds Himself at Rochester.

ROCHESTER, N. Y., May 21.—Six annual meetings have been recorded in the history of the Rochester Automobile Club, and the recent one excelled in point of interest and attendance all its predecessors. Senator W. W. Armstrong, F. H. Elliott, secretary of the New York State Automobile Association, President Brown, of the Syracuse Automobile Club, and President H. A. Meldrum, of the Buffalo Automobile Club, were guests. The report of the secretary showed a membership of 203, a net increase for the year of 47.

The election of officers for the ensuing year resulted as follows: President, Harry S. Woodworth; vice-president, Henry G. Strong; secretary and treasurer, H. Seymour Bentley; attorney, John A. Barhite; consulting engineer, A. J. Rockwood; directors, Griff D. Palmer, F. H. Bettys, Lee Richmond, F. E. Mason, A. F. Crittenden, J. S. Bingeman, G. G. Foster, William C. Barry, Jr., and Rudolph Schmidt.

Macon's Successful Meet Will Be Held Annually.

MACON, GA., May 21.—The closing of the three-day meet of the Macon Automobile Club, on May 12, was marked by a brilliant social function at the Log Cabin Clubhouse, in this city, on the evening of the day mentioned. Hon. B. L. Jones, president of the club, received the guests, and dancing and refreshments were a part of the program. The club is enthusiastic over the success of its first meet, and has practically decided to hold the event annually in May. Central City park track was used for the meet, and large delegations of automobilists drove from Atlanta, Savannah, and neighboring cities and towns. Most of the events were won by local drivers, and the fastest time made was by Edw. H. Inman's 50-horsepower Stearns, driven by John Toole, who won a four-cornered match race at 5 miles in 5:58, record for 1-mile circular track. A separate mile was done by the same car in 1:05.

Bisons Active in Repressing Speed Violations.

BUFFALO, May 21.—Resolutions have been adopted by the Automobile Club of Buffalo deploring high speed of automobiles within the city limits. The members of the club have been doing everything within their power to stop the reckless driving of automobiles. Only a short time ago H. A. Meldrum, president of the club, appeared in Police Court, in behalf of the club, against a chauffeur who drove down Main street, in the business section, at the rate of 30 miles an hour. Complaint has been made about some reckless and inexperienced chauffeurs, who test the speed of their cars in Delaware Park, thus endangering the lives of pedestrians and more sensible drivers of machines.

Flour City Automobilists Open New Club Rooms.

MINNEAPOLIS, MINN., May 21.—The handsome new club rooms of the Minneapolis Automobile Culb were formally opened last Friday evening. The club has secured a lease of an entire floor of the Plaza Hotel, and the rooms have been fitted up in the most modern style possible, containing a large, fully equipped billiard hall, a buffet, a lounging room, and several other minor rooms, all of them fitted with a view to the greatest comfort of the members.

Mayor Dunne Will Be Guest of Austins.

AUSTIN, ILL., May 21.—The annual tour of the Austin Automobile Club will be held June 9. A meeting of the club was held Tuesday night, and it was decided that the run extend over many of the principal boulevards and parks of the north and west sides of Chicago. Mayor Dunne has accepted an invitation to participate in the tour as a guest, and invitations have been sent to Governor Dineen and members of the West Park Board.

Floral Parade and Orphans' Day at Pittsburgh.

PITTSBURGH, May 21.—Following the annual Orphans' Automobile day, June 5, the Automobile Club of Pittsburgh proposes to have a mammoth floral parade, probably about June 15, in the height of the rose season. The affair will not only be a very costly novelty in this city, but as proposed will be one of the most beautiful sights ever witnessed in Pennsylvania. Over 100 cars are assured for the parade. Two $100 prize silver cups have already been offered for the best decorated cars, one by the Pittsburgh Country Club and the other by the Automobile Club of Pittsburgh. The proposed route is along the main streets and boulevards of the East End out to the Country Club on Squirrel Hill. It is likely that the Hotel Schenley, at the entrance to Schenley Park, will be the rendezvous.

Tennessee Has a New and Considerate Club.

MEMPHIS, TENN., May 21.—Twenty-seven automobile owners met Friday night and organized the Memphis Automobile Club. The officers are among the most prominent men in Memphis, and owners or part owners in machines only are eligible for membership. The object of the association is to promote the rational use of automobiles and to observe and encourage the observance of municipal ordinances.

The following officers were elected to serve the ensuing year: President, S. T. Carnes; vice-president, A. S. Caldwell; secretary, Harry Liggett. The board of control is composed of P. P. Williams, chairman; J. A. Omberg, Jr., F. F. Hill, W. F. Yates and J. Falls.

CLUB DOINGS IN GENERAL.

WICHITA, KAN.—An organization has been perfected here to inaugurate a series of tours and competitive endurance contests, to be known as the Wichita Automobile Club. Six of the owners of large-horsepower cars are the nucleus of the new club, and other automobilists will be invited to join.

ROCKFORD, ILL.—Plans are being formulated by the Rockford Automobile Club and the boat club of this city for the building of a clubhouse to be used by both organizations. A garage and clubrooms for the former organization will be arranged separately from the quarters of the boat club. All will be in one building, and probably on one floor there will be a large hall to be used by both clubs.

WILMINGTON, DEL.—The Wilmington Country Club, which has extensive grounds just outside of the city, has adopted the plan of cutting the grass with an automobile; that is, a motor car is used to draw a mowing machine, which does the work to perfection and without tiring horses. The club's experiment having proved a success, several other people living in that vicinity are also following the same plan, with equal success.

NEW YORK.—Orphans' Day (June 6) celebration plans are being rapidly completed by the tours and runs committee of the New York Motor Club, of which W. J. Morgan is chairman. About 150 cars have already been offered. The parade will be under the direction of Gen. John T. Cutting, grand marshal, with a number of division aides, and there will be several official cars in use as pilot and scout cars. The club hopes this year to take care of at least 1,000 orphans, who will be selected from the various institutions in Manhattan and will be taken to Dreamland, where a day of sight-seeing and enjoyment will be given the little ones. An opportunity has been given this year to defray the expenses of Orphans' Day, and considerable has already been subscribed. Subscriptions to the fund should be sent to R. H. Johnston, treasurer of the club, at 1402 Broadway. Offers of cars with drivers for the day should be forwarded to W. J. Morgan, Bretton Hall, New York City.

THE AUTOMOBILE

VOL. XIV Published every Thursday by No. 21

THE CLASS JOURNAL COMPANY,
Flatiron Building, Madison Square,
New York City.

H. M. SWETLAND, President

EDITORIAL DEPARTMENT:

A. G. BATCHELDER, Managing Editor H. F. DONALDSON, Engineering Editor
H. W. PERRY, Associate Editor HOWARD GREENE, Assistant

BUSINESS DEPARTMENT:

A. B. SWETLAND, Business Manager
L. R. SMITH P. M. RICHARDS B. FRANK BARNETT
W. I. RALPH, 1034 Old South Building, Boston, Mass.
C. H. GURNETT, H. H. GILL, 625 Monadnock Block, Chicago, Ill.

Cable Address - - - - - - - - Autoland, New York
Long Distance Telephone - - - - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - - - - - - One Year, $2.00
Other Countries in Postal Union, - - - - - - One Year, $3.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride St., Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

Entered at New York, N. Y., as second-class matter.
The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1905, - - - - - - - - - - - -	730,000
" " This Issue, - - - - - - - - - - - -	15,000
" " Since Jan. 1, - - - - - - - - - - - -	304,000

A Touring Committee with an Impossible Task.

It would seem in the case of the National Touring Committee of the A. A. A. that it will be damned if it doesn't provide for the smaller car and likewise damned if it confines the contest for the Glidden trophy to the big touring cars. It will be remembered that the N. A. A. M. committee in despair gave up the attempt to place the big and little cars on an equality in the competition. Without reference to weight, usual touring conditions might be construed to require a tonneau car carrying at least four persons, though it is true that one can travel comfortably and particularly economically in a two-seated runabout. Nevertheless, first-class touring conditions, in the opinion of many, call for the tonneau car, and undoubtedly Mr. Glidden had this idea in view when he offered his trophy. While it might not be generally known, it is a fact that the 1905 Glidden Commission penalized the two-seated runabout in figuring out the winner, though even if this had not been done the runabouts would not have been much nearer the top score. A solution of the problem would be the offering of two distinct trophies—the Glidden trophy for the tonneau car and another trophy for the runabout class. But no matter what plan is tried there will be some dissenters, for the reason that it is utterly impossible to arrive at a fractional equitable adjustment. The idea of the A. A. A. tour is more pleasure than work, and of those who participate few will really care what becomes of the trophy or trophies. But consider the difficult task of the committee and be lenient in your criticism. Serving on the official list of any organization similar to the A. A. A. often is a thankless task at the most, and those who give time and money without recompense should receive liberal consideration at the hands of those who tell the news of automobiling's progress.

Where the Automobilist Should Be Considerate.

From Vermont, in the form of a contribution of a ruralist to his local paper, comes a plain statement of fact that should impress itself upon every fair-minded automobilist who tours in that state, or in any other state where the automobile is an uncommon sight and an unexpected thing when encountered by other users of the road. The rural writer tells the same story that has been told before of the coming of the automobile into new country, reciting the dread of those who still use the horse and must continue to use the same method of conveyance for years to come. In Vermont, where the percentage of aged people is high, many owners of horse-driven vehicles keep off the road as much as possible through fear of danger in meeting inconsiderate automobilists. The Automobile Club of Vermont is preaching, and its members are practicing, regard for other users of the road, and the complaint traces back to tourists from outside the state who often push forward despite the signal of upraised hand and the look of anxiety on the faces of those behind the horse. When traveling in states wherein the automobile has yet to become familiar, the automobilist owes it to his sense of fairness to employ extreme consideration to the horse owner, who some day will substitute the motor-driven vehicle for his present slower mode of travel.

✱

Brake Horsepower Formula for Four-cycle Motors.

In this issue is printed an article on the brake horsepower of four-cycle motors. While this is a subject on which much has been written, yet no writer has so far approached the subject from just the viewpoint of this article. While, of course, no formula can be found that will give the power developed on the brake by an automobile engine, we have here considered the piston displacement, the speed, the clearance, and the average mechanical efficiency, leaving only the ignition, the mixture, and the valve design as variables.

As may be seen by the writer's first curve, current practice does not agree exactly with his formula. This may be due to two reasons. First, that the mechanical efficiency of different makes of engines differs. Second, the use of different carbureters and different valve timing will greatly change the proportions of the piston displacement which is filled with mixture each working stroke, also the same engine will take in a different charge volume at different speeds, thus giving a different compression pressure for the same clearance volume.

Although the formula represents a good average of American practice and gives closer results than most of the more empirical formulæ heretofore published, it may not give exact results for any particular engine, for the reasons above mentioned. As the writer suggests, the constant may have to be modified to suit any particular line of engines.

✱

To Cover the Risks of the Road.

Another kind of insurance policy is a necessity that must be met immediately. In the state of Washington recently an assistant attorney-general held that the automobile was a marine risk, while in Louisiana an insurance company declined to pay in the case of an automobilist who was killed, putting forward the ridiculous contention that automobilists were afflicted with a speed mania that subjected them to extraordinary liability of death. A policy that will cover the revised risk of the road, both as to machine and its operator, would appear to have become an essential in automobiling. The day unquestionably will come when automobiles will travel over a specially constructed road which will include a going and a coming lane with a center portion reserved for the slowest travelers. This must be if we are to secure the worth of the time-saving speed of the automobile, and the cost will not prove exorbitant.

FRENCH ENTRIES FOR THE VANDERBILT.

Chairman J. D. Thompson of the A. A. A. Racing Board is not worrying regarding the declination of the Automobile Club of France to assist in the selection of the French team for the Vanderbilt Cup race. The Racing Board has its plan outlined, though it has courteously awaited the receipt of a formal notification from the French club that it would not assist in the premises. There will be five French cars in the Vanderbilt race, and their selection will be made in an equitable manner, according to Chairman Thompson, who intends to sail for the other side early next month and be a spectator of the Grand Prix. A meeting of the Racing Board will be called for next week, but in the meantime preparations are being made for the Vanderbilt event, the success of which will eclipse the great race of last year.

NO RULES YET FOR A. A. A. TOUR.

Chairman Paul Deming of the A. A. A. National Touring Committee on Tuesday wired from Detroit that the rules governing the 1906 A. A. A. tour had not been positively decided upon, nor would they be for several days. The 2,000-pound idea, making cars of less than this weight ineligible for the Glidden trophy, has not been officially adopted, and in fact the sub-committee has simply considered it as a possible line of division between the big and little cars. The principal idea of the committee is a pleasure tour with as few irksome rules as possible.

PENNSYLVANIA FEDERATION AND A. A. A.

PITTSBURGH, PA., May 21.—The recent visits to this city of Sydney S. Gorham, secretary of the American Automobile Association, have stirred up a lively interest as to how best to cooperate with that organization in securing defensive legislation for automobilists. Pittsburgh motorists are willing to co-operate with the national association, but do not wish to lose their independence by so doing. The A. A. A. officials want the Pennsylvania Motor Federation to be allied with it, and it is likely that a working agreement between the two organizations will be effected shortly. The Pennsylvania organization is strongly backed in Pittsburgh, and its supporters do not intend to see its energies diffused so as to lose sight of the few very important improvements in this vicinity which are to be accomplished if possible.

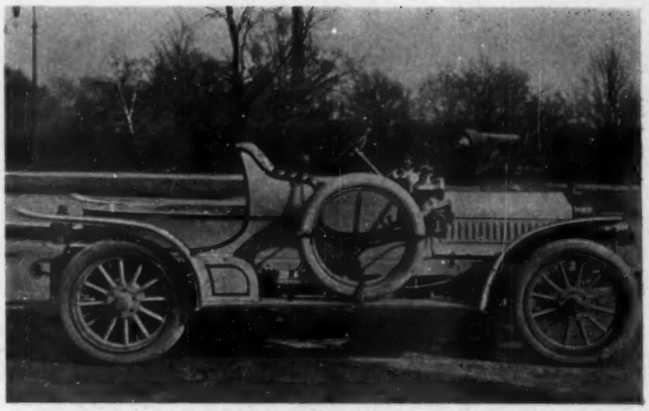
NEW YORK'S OPEN-AIR SHOW.

At the Empire City track, Yonkers, to-day begins the open-air automobile show of the New York Automobile Trade Association, the formal opening being scheduled for 2 o'clock this afternoon, with Dave Hennen Morris, president of the Automobile Club of America, formally setting the wheels in motion. The show will continue Friday and Saturday, and each day there will be contests in the afternoon, the programme being varied and including a daily balloon ascension and parachute jumps.

CONGRESS HAS MANY ROAD BILLS.

WASHINGTON, D. C., May 21.—The present session of Congress, which is now drawing to a close, has been remarkable for the number of good roads bills that have been introduced and for the many stirring appeals that have been made on the floor of the House for legislation that will aid in the improvement of the highways throughout the country.

Now comes Representative Sulzer, of New York, with a bill "to promote the construction of good roads and the efficiency of the postal service in the states and territories of the United States." His bill provides that upon the application of the proper authorities representing any state or territory of the United States, the secretary of the treasury shall loan to such state or territory for the construction or improvement of post roads within such state or territory and outside the limits of any city the actual cost of such construction or improvement.



NEW THOMAS FLYER RUNABOUT WITH RUMBLE SEAT.

PHILADELPHIA MAY HAVE AN AUTO MART.

PHILADELPHIA, May 21.—If there is anything in the rumors current along North Broad street last week, Philadelphia is to have an "auto mart" constructed on lines somewhat similar to those of Boston's famous establishment. The report had it that

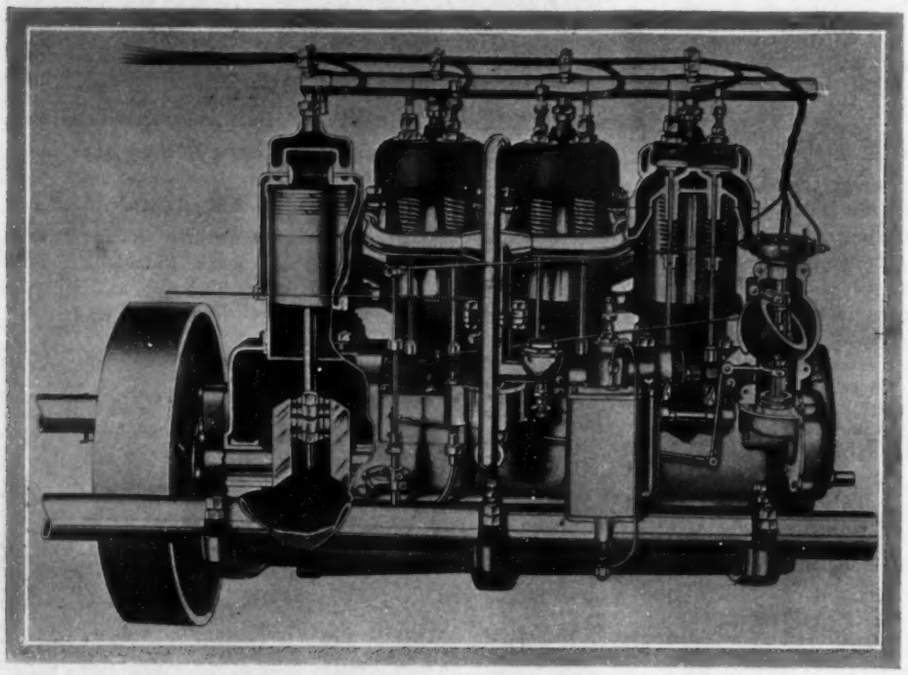
MISS BLANCHE RING IN HER 1906 STEARNS CAR.

those back of the "Hub" concern are also interested in the proposed mart here, and that an option on a piece of property containing 40,000 square feet of ground in the neighborhood of Broad and Arch streets had been secured. Opinion along "the row" seems to favor the erecting of such a building.

LATEST ADDITION TO FACTORY OF PACKARD MOTOR CAR COMPANY, DETROIT—BUILT ENTIRELY OF CONCRETE AND STONE.

THE STORY OF AN UP-TO-DATE CAR

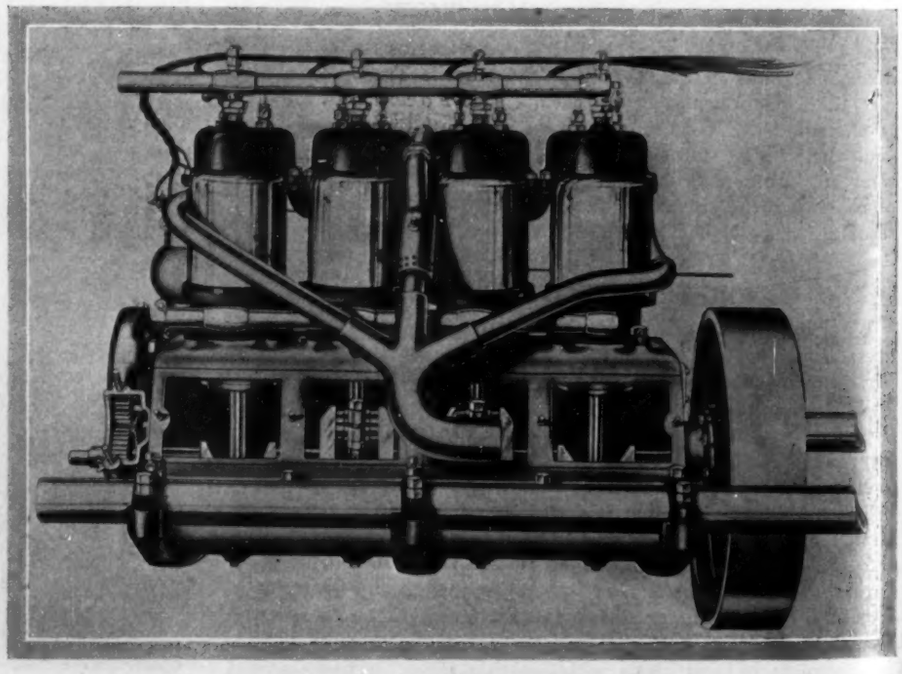
AFTER several years spent in the manufacture of small, single-cylinder gasoline cars of the runabout and detachable tonneau type, the Cadillac Motor Car Company, of Detroit, brought out, in 1905, a new model, a four-cylinder, 30-horsepower touring car built on the lines of the foreign type of touring car; and in 1906 the machine remains practically unchanged. Several of the features that characterized the Cadillac small cars are incorporated in the touring car—for instance, copper water jackets on the cylinders, planetary transmission and very long pistons.



CADILLAC 4-CYLINDER MOTOR, SHOWN PARTLY IN SECTION.

The four-cylinder vertical motor not only has individually cast cylinders, but the cylinder heads are also separate castings, so that in case of damage to a cylinder head, for instance, it will not be necessary to purchase an entire new cylinder, pair or set of cylinders, as the case may be. All the valves are mechanically operated and placed in pockets on the right-hand side of the engine; a single camshaft carries the cams that actuate all the valves. Valves can be removed through openings in the tops of the valve chambers or pockets, these openings being closed by screw plugs. Into the inlet valve plugs are screwed the spark plugs; the exhaust valve plugs carry the relief cocks. The cylinders have a bore of 4 3-8 inches and a stroke of 5 inches. Pistons are fitted with three rings each. Connecting rods are of H section and are made from steel drop-forgings. The crankshaft bearings and the crankpin bearings are of bronze-backed babbit, and are split. A float feed carbureter of standard make supplies the motor with gas through piping arranged to give the same length of travel for the gas from carbureter to each cylinder. Hot air is taken from a perforated jacket on the exhaust pipe on the left-hand side of the motor. The arrangement of the inlet piping, exhaust piping, the hot-air jacket and other parts are clearly shown in the engravings of the engine.

An interesting feature of the engine is the governor interposed between the throttle lever and the throttle itself. The governor is of the revolving ring type, and hardly needs explanation, being shown clearly in a separate engraving. The tendency of the ring to assume a horizontal position when rotating is utilized to move a linkage connected with the throttle, the throttle opening being reduced at high speeds and increased as speed decreases. The ring is normally held in the position shown in the engraving by a spring whose tension can be regulated by the controlling lever on the steering wheel. If the spring is tightened, the governor will hold the throttle open until a high speed is reached, while if the spring is slackened the throttle will close at low speed; but whatever speed the lever is set for, that speed will be maintained by the governor, as long as the load imposed on the engine is within its capacity to overcome. For instance, the governor will automatically open the



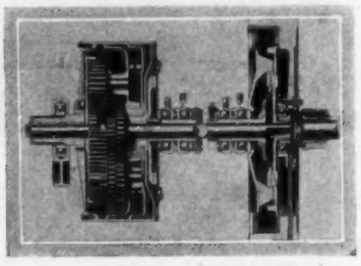
EXHAUST SIDE OF MOTOR WITH CRANKCASE PLATES REMOVED.

throttle on ascending a grade, and, on the other hand, will automatically cut down the supply of gas when the engine is freed of its load, as when the car is coasting. The governor is mounted on a vertical shaft running in ball bearings, and on the top of the governor shaft is mounted the timer, operated by a lever which can be operated independently of the throttle.

ROTATING RING GOVERNOR.

Drive from the motor is through a leather-faced clutch, three-speed planetary transmission, shaft and bevel gears to the live rear axle. Throughout the clutch, transmission, propeller shaft and rear axle, ball bearings are used, and the road wheels also run on balls. Each wheel runs on two sets of bearings, one larger than the other, the large balls being placed in the line of the spokes so as to take the main stress, and the smaller balls act as a steadying bearing and take care of lateral stresses.

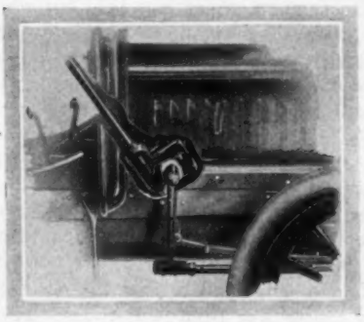
The main clutch, contained in the hollow flywheel, consists of two leather-faced disks normally holding the engine in engagement with the transmission system. The clutch is manipulated in the usual way, by means of a pedal. The planetary transmission is operated by means of bands tightened on the faces of the drums, just as in smaller cars; but there are three forward speeds and one reverse instead of the two speeds provided by most planetary gears, and no internal gears are employed, all being spurs. On the high speed the entire transmission revolves with the shaft, acting as an additional flywheel, and the drive is direct to the bevel gears on the rear axle. In the rear of the transmission is a universal joint connecting with the propeller shaft, and a second joint is placed at the forward end of the short bevel pinion shaft. When the car is normally loaded the propeller shaft is almost exactly in line with the crankshaft, the transmission shaft and the bevel pinion shaft, so that the universal joints are not heavily taxed.



TRANSMISSION AND CLUTCH.

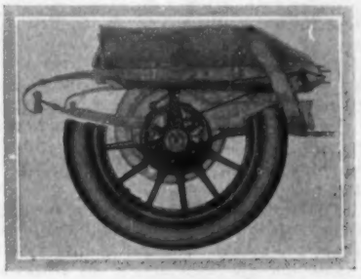
Both front and rear axles are of heavy steel tubing, the front axle being well dropped under the engine. The front springs are semi-elliptic, as in last season's car, but the platform arrangement used in the rear of the 1905 model has been changed for three-quarter elliptics this year. Springs are of good length, and are fitted with clips to prevent breakage under violent rebounds.

All braking efforts are concentrated in the rear wheels; a single steel drum on each rear hub is acted on by an exterior contracting band, operated by a pedal and constituting the regular service brake, and an internal expanding ring, operated by a side lever and used for emergency braking. By this arrangement no braking stresses are transmitted through the driving mechanism, and the breakage or disablement of the shafts or gears cannot affect the operation of either of the brakes. In applying either of the brakes the clutch is automatically disengaged, the driver thus being relieved of the necessity for making two motions—declutching and braking—at the same time. The clutch can be withdrawn, without applying either of the brakes, which are inclosed. Wheels are of hickory, with steel hubs; the wheelbase is 102 inches and the tread 56 1-2 inches—standard tread. Tires are 4 inch, and several options are given in this detail.



STEERING GEAR.

The body is of the standard touring type, with side entrances, and the usual straight lines of the rear post are slightly modified so as to form gentle curves, giving the car an attractive appearance. A hollow, pressed-steel dash is used. The standard finish consists of purple lake for the seat panels, doors and other upper parts, striped with carmine, black for the lower part of the body, and a dark carmine for the frame, wheels and axles, which lends a harmonious effect to the whole. In addition to the touring car body, the chassis can be fitted with a runabout or "cross-country" body of the now popular style, or with a coupé body. The specifications of the mechanical equipment are the same in each case. The touring car is stated by the maker to be capable of attaining a maximum speed of fifty miles an hour.

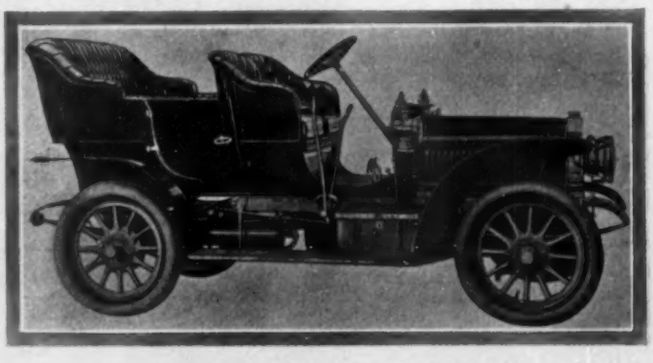


DOUBLE HUB BRAKES

DE LUXE MOTOR COMPANY OF TOLEDO.

TOLEDO, O., May 21.—The De Luxe Motor Company is having plans made for a new factory, which is to be located not far from Toledo or just outside the city limits, and on the Toledo Terminal and Railways Company's belt, which will give it direct connections with every railroad, electric and steam, running into this city. While not prepared at present to give the size of its plant, it will have a capacity to begin with of 250 cars for next year, 500 for the second, and 1,000 for the third. The company had already started work at the old Kirk factory, where it is building its models and patterns, so as to be able to start work immediately when once its new plant is completed, which is expected to be early this fall.

The official roster of the company is as follows: President, G. M. Verity, Middletown, O.; vice-president and secretary, F. M. Keeton, Toledo; treasurer, R. C. Phillips, Middletown; assistant treasurer, F. A. Shepler, Toledo; superintendent, John E. Locher; mechanical engineers, Frank S. Davis and John A. Herzogg. All the Toledo men were, prior to the organization of the new company, employed at the Pope Motor Car Company's plant in this city.



THE COMPLETE CADILLAC 4-CYLINDER CAR.

GASOLINE WON AT CINCINNATI.

CINCINNATI, May 21.—The second annual hill-climbing contest of the Automobile Club of Cincinnati, which was held Saturday, was a bigger success than last year's event. The races were run on Paddock road, in Avondale, a suburb, which graded from 10 to 15 per cent., and the course was three-quarters of a mile. The track was slow, but no fault was attached to the management, and therefore none of last year's records was broken. However, in the free-for-all event O. S. Pogue, with a 24-horsepower Packard, made the distance in 1:01, which was only 2-5 of a second slower than the time established in 1905. The course this year was fifteen feet longer than at the previous race, and that accounts for the difference in the time.

There was not an accident of any kind to mar the occasion. A detail of police kept the course free from pedestrians. More than 5,000 spectators were present and over 400 automobiles lined the sides of Paddock road. Much deserved praise was bestowed on President Val Duttenhofer and Foster Bradley, who were managers of the course. Jos. Monfort was starter, Harry Walters, assistant, and L. S. Colter, A B. Hyle, J. D. Allison and L. G. Oskamp, judges of the finish. The following is the summary:

Runabouts, from 1 to 12 horsepower—won by A. R. Morgan, 12-h.p. Franklin; time, 1:26; A. G. Brunsman, 32-h.p. Stoddard-Dayton, second; time, 1:30.

Touring cars, 12 to 24 horespower, with tonneaus attached—won by H. W. Fulton, 20-h.p. Franklin; time, 1:24; Miss Charlotte Allen, 20-h.p. Stevens-Duryea, second; time, 1:29.

Touring cars, 24 to 35 h.p., carrying four passengers—won by F. F. Bradley, 35-h.p. Pope-Toledo; time 1:09; A. G. Brunsman, 35-h.p. Stoddard-Dayton, second; time, 1:18 1-4; H. H. Hoffman, 35-h.p. Pope-Toledo, third; time, 1:20.

Touring cars, 35 to 50 horsepower—won by F. F. Bradley, 35-h.p. Pope-Toledo; time 1:07; Henry Burkhold, 50-h.p. Thomas, second; time, 1:23; J. H. Hughes, 40-h.p. Stearns, third; time, 1:38 4-5.

Free-for-all—won by O. S. Pogue's, 24-h.p. Packard, driven by Chauffeur Fields; time, 1:01; W. O. Balke, 24-h.p. Packard, second; time, 1:02 4-5; Albert Krippendorf, 30-h.p. Pope-Toledo, third; time, 1:05 1-2; F. F. Bradley, 35-h.p. Pope-Toledo, fourth; time, 1:06; H. H. Hoffman, 35-h.p. Pope-Toledo, fifth; time, 1:11; Henry Burkhold, 50-h.p. Thomas, sixth; time, 1:14 1-5; J. H. Hughes, 30-h.p. Stearns, seventh; time, 1:20; Sid Black, 22-h.p. Buick, eighth; time, 1:37.

STEAMER WON MINNEAPOLIS CLIMB.

MINNEAPOLIS, MINN., May 21.—The annual hill climb of the Minneapolis Automobile Club was held Saturday on the Riverside hill driveway. The day was ideal, and thousands of spectators witnessed the events from the side lines or the bluffs, which are so arranged as to enable one to see the entire course.

A new record for the climb was made by H. C. Wilson in his freak steamer, which is rated at only 4 1-2 horsepower. He went up the 2,000 feet of the driveway in the remarkable time of :32 7-8, which is better by 1 1-8 seconds than the record of last year. The little car made the most sensational run of the day, having a hair-raising start and making a sensational finish, and several times being in imminent danger of overturning on the short curves of the road. It won the free-for-all class.

Class 1 was won by Gus Ringlund in his 10-horsepower Cadillac, which went over the course in 1:15 3-4. Second and third were taken by F. M. Overholt in a 14-horsepower Wayne and W. C. Thornhill in his 8-horsepower Reo.

In Class 2 H. J. Mich sent W. H. Wheeler's Buick over the tape in :47, with E. L. Weinant in a Buick a close second, with a record of :48 1-4.

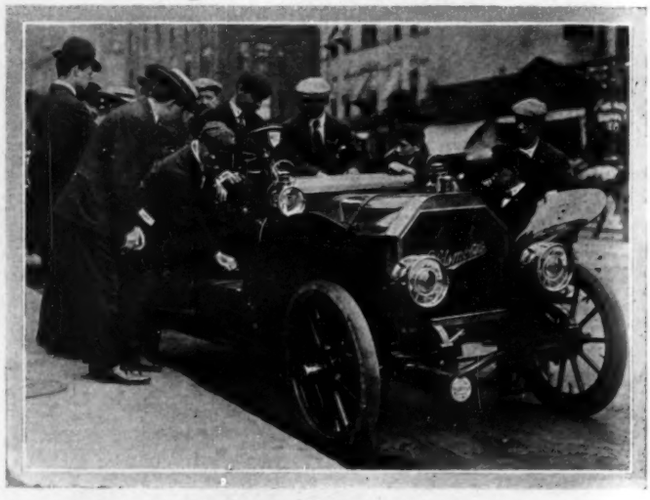
C. C. Evans captured the honors in Class 3, sending his 24-horsepower Mitchell up the hill in :43 1-2. J. J. Barclay, in his Olds, was a dangerous second, coming in just 1-4 of a second later. A Ford, owned by E. J. Phelps, was third, covering the distance in :44 3-4.

Class 4 went to a Pope-Toledo, owned by H. E. Pence, which crossed the tape in :37 3-4. Second and third places were taken by William Knipper in a Thomas Flyer in :38 3-4, and Charles Meyers in a Peerless in :40.

SEVENTY-SIX MILES ON THE HIGH GEAR.

An interesting test of the ability of a 30-horsepower touring car to make a trip of 76 miles over roads varying from very good to very bad, and from level to 17 per cent. upgrade, entirely on the high gear, was made on Saturday last, when an Oldsmobile Model S touring car started from the Oldsmobile agency at 1655 Broadway, New York, and with the control lever sealed in the high gear position, made the trip to Poughkeepsie without an involuntary stop.

At the start Joseph Tracy was at the wheel, and he drove to Yonkers, at an average speed of 14 miles an hour. Here Tracy turned the wheel over to Ernest Keeler (who, by the way, is slated to drive the Oldsmobile Vanderbilt Cup racer), and Keeler finished the run. The first real test of the motor came when the long and sandy hill south of Croton was encountered. Making a rush at the grade, the car went up in good style; but near the top a truck was found occupying the middle of the road. Rather than stop and spoil the run, Keeler turned into the ditch and managed to get around safely, though the car narrowly escaped upsetting. Welcher Hill, north of Croton, with a maximum grade of about 17 per cent., had to be taken without a flying start, owing to the high "thank-you-ma'ams" and the number of vehicles in the road. The surface was poor, too, having been covered with loose dirt in the process of road improvement. The top was reached, however, and the remaining hills on the route proved to be comparatively easy. A stop was made at Peekskill for gasoline and water, and the run finished without special incident. The seal was left intact until the following morning, when it was broken by H. N. Bain, proprietor of the Nelson House at Poughkeepsie, under the direction of officials of the New York Motor Club.



JOSEPH TRACY READY FOR THE OFFICIAL START.

NORTH JERSEY A. C. MEET, JUNE 9.

PATERSON, N. J., May 23.—The North Jersey Automobile Club, which is the largest organization of its kind in New Jersey affiliated with the A. A. A., will hold its second annual race meet on the driving park track at Hohokus, N. J., Saturday afternoon, June 9. The track is a half mile with banked turns, and is kept in excellent condition. It is believed that it will be possible to equal if not break some of the established half-mile track records.

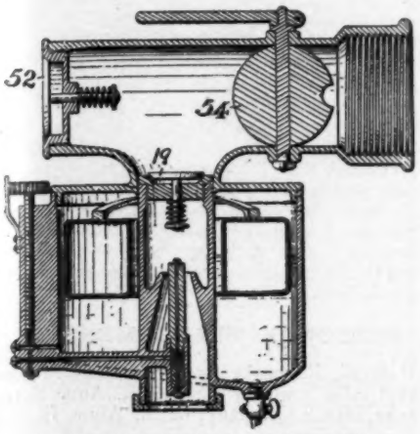
The race committee has outlined a number of interesting events, the prizes for which will be silver cups for first and second places. Entry blanks may be secured from Robert Beattie, secretary of the club, Little Falls, N. J.

Patents

Carbureter.

No. 817,941.—C. Stute, of Newark, N. J.

This is a float-feed carbureter whose special feature is the employment of automatic valves for the purpose of preventing backfiring into the spray chamber. The entire carbureted mixture passes through the light



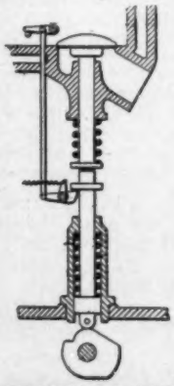
STUTE'S AUTOMATIC CARBURETER.

automatic valve *19* before passing to the throttle valve *54*. The relief valve *52* is provided to open outward in case of a backfire in the mixture pipe, and valve *19* is supposed to close before the flame can get through it.

Combined Valve and Spark Cam.

No. 819,116.—H. Austin, of Birmingham, England.

A combination toe and snap cam for operating a valve (inlet or exhaust) and a



AUSTIN'S IGNITION AND VALVE GEAR.

make-and-break igniter. The igniter is worked by a hammer-blow mechanism from the push rod, and the valve movement is not affected thereby.

Shock Absorber.

Nos. 818,646 and 818,647.—R. P. Winsor, of Providence, R. I.

Two forms of frictional shock absorbing devices, arranged to work freely under small vibrations and to come into play frictionally when the vibrations are considerable.

Acetylene Gas-Burner.

No. 817,750.—J. B. Carrol, of Chicago, Ill.

A form of burner having the tips deeply recessed, so that the substance of the tip is

CARROL'S ACETYLENE BURNER.

at a considerable distance from the flame, except at the orifice from which the gas issues. At this point the material is so thin that it becomes heated beyond the temperature which would permit deposits of carbon from the flame. The cold air necessary for combustion enters around the sides of the orifices *4 4*, thereby assisting to keep the walls of the orifice cool.

Solid Tires.

No. 817,957.—W. Christy, of Akron, Ohio.

A solid tire held by wire retaining rings at its sides and having its base stiffened by the incorporation of a strip of wire cloth or the like extending from side to side of the rim channel.

Transmission Gear.

No. 819,334.—A. T. Brown, of Syracuse, N. Y.

The design shown in the drawing herewith. The case is not split in the plane of the shafts, but higher up, and the shafts, which run in roller or ball bearings, are inserted by making the hubs of the case large, and—for the jackshaft—closing them by threaded caps which leave a large opening when removed. The pinion *34* is large enough to slip through that opening, for convenience in assembling. The driving shaft *14* is riveted into the long hub *23* of the driving pinion *21*, which, for the high speed, couples direct to the sliding pair of gears *26, 27*. The shaft *14* extends nearly through the square shaft *16*, supporting the latter very steadily, and oil holes are drilled all along *16*.

Machine for Making Radiator Tubes.

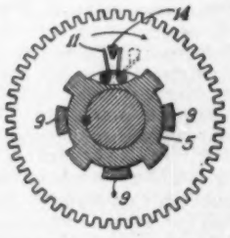
No. 817,939.—F. H. Stolp and C. Wright, of Chicago, Ill.

A machine for applying a continuous spiral crimped flange to a radiator tube in the manner described in patent No. 817,938.

Non-Grinding Sliding Gears.

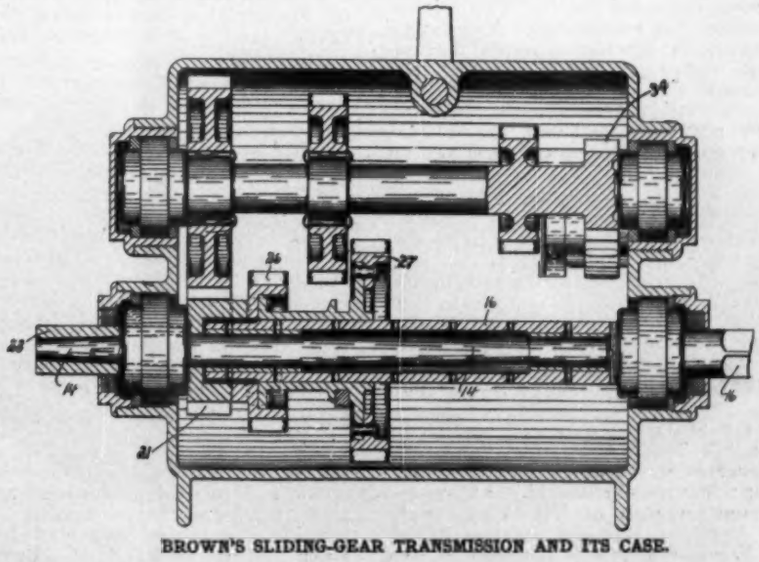
No. 818,161.—D. S. Grant, of Stoneham, Mass.

In this invention the slidable gears *1 2* are sleeved on a carriage *5*, and the power is transmitted from the gears to the carriage



GRANT'S NON-GRINDING GEAR.

through lugs *9 9* at the sides of the gears. A pair of springs *11* engage a lug *14* projecting from each of these gears, and these springs tend to hold the gears in the position shown; consequently the gears can rotate a sufficient distance on the carriage before the driving lugs come together, to permit the teeth to go into mesh without grinding.



BROWN'S SLIDING-GEAR TRANSMISSION AND ITS CASE.

NEWS AND TRADE MISCELLANY.

The Novelty Tufting Machine Company has removed from 192 to 264 Michigan avenue, Chicago, two blocks south of the Auditorium Hotel.

The George J. Scott Motor Company, New York agents for the Glide, has removed from 308 West Fifty-ninth street to 1720-1722 Broadway, near Fifty-fourth street.

The North Western Storage Battery Company, formerly of 286 East Madison street, Chicago, Ill., has moved into larger and more convenient quarters in Milwaukee, at 488 Milwaukee street.

Morgan & Wright's San Francisco branch has been practically restocked and reopened at a new permanent address, 411-413 Golden Gate avenue, and is in position to again take care of Pacific Coast customers.

The Atlantic City Automobile Company, which owns a fine garage in that city, has ordered signs erected every mile along the roads leading from Philadelphia and Lakewood to Atlantic City. Special signs have been ordered for every cross road.

The Autocar Company of New York has arranged to occupy its new quarters at 138 West Thirty-eighth street, on June 1, when the Reo Motor Car Company, which now occupies the premises, will remove to its new store and garage at 40 West Sixtieth street.

Edward Russell Thomas, of New York, has received from Europe his new 120-horsepower Mercedes, that has a speed possibility of 90 miles per hour. The car was ordered four months ago through Smith & Mabley, Inc., and was delivered to Mr. Thomas by the Mercedes Import Company.

C. A. Duerr & Co., New York agents for the Royal Tourist car, have purchased the lease and plant of the Metropolitan Auto Company, at 2182 Broadway, where the Royal headquarters will shortly be established. The present premises of the Royal agency at Broadway and Fifty-eighth street have been outgrown.

Marking the commencement of an extensive outdoor advertising campaign, the Maxwell-Briscoe Motor Car Co., of Tarrytown, N. Y., has placed thirty large cut-out signboards along the line of the Pennsylvania Railroad between New York and Philadelphia, and forty along the same railroad between Washington and the Susquehanna River.

German firms are unable to fill all foreign orders for automobiles. Vice-Consul Schlemmer of Mannheim writes that the German motor production for 1905 was $10,000,000, the export to England and France increasing 400 per cent. Twice the present possible production in Germany would not supply the demand, especially for heavy vehicles.

E. V. Hartford, president of the Hartford Suspension Company, has opened a new salesroom for Gobron-Brillie cars and a place for applying Hartford suspensions, at Broadway and Eighty-eighth street. Harry H. Chipps has been installed as general manager. There is storage accommodation for about fifteen cars, that will be given the same attention they would receive in a private garage.

At the last meeting of the New York Automobile Trade Association the following concerns were elected to active membership: Maxwell-Briscoe Motor Company, Matheson Company of New York, Lozier Motor Company, Hartford Suspension Company, Wayne Automobile Company of New York, Frayer-Miller Motor Car Company and Covell & Crosby Company.

Fire Chief Edward Croker, of New York City, has had a set of Truffault-Hartford shock absorbers put on his American Mercedes car, which he uses in going to fires. Shock absorbers were also put on the Locomobile of Deputy Fire Chief Thomas Lally a couple of weeks ago, and have given great satisfaction. Both cars are required to go over all obstructions on the city streets at great speed.

Henry Ford, of the Ford Motor Company, offers this explanation of the self-starting tendency of the new six-cylinder Ford car: "The cranks being set at 120 degrees instead of at 180 degrees as in a four-cylinder motor, the ability of a six-cylinder motor to start on the spark is not dependent on its liability of stopping exactly between compressions. At all times, in the newer type of motor, one piston is in the proper position to receive its impulse, so that it is only necessary to have the spark advance lever in the 'slow' position and close the switch. If there is a charge of explosive mixture in the cylinders, the motor will invariably start."

Owners of automobiles give more attention to the matter of perfect ignition than they used to. Time was when the question of ignition was not considered of important moment, but everyone nowadays recognizes the necessity of high-class appurtenances in the ignition outfit. The Dayton Electrical Mfg. Co. is one of the pioneers in manufacture of ignition systems, its well-known Apple magnetos having achieved a great reputation at home and abroad. Recent advices from the factory at Dayton bring out the fact that, owing to the tremendous demand for the new Apple storage battery and battery charging outfit, the business is fully three times as large as it was at this time one year ago. The company has recently been compelled to double the factory floor space, although the plant was by no means small. A new shipping department has been installed, a new office built for the superintendent, and the force of regular employees greatly increased.

NEW AGENCIES ESTABLISHED.

The North Philadelphia Auto Station, of Philadelphia, has secured the local agency for the 40-horsepower Relay car.

The Auto Tire Company, of Kansas City, Mo., has completed arrangements for handling Morgan & Wright tires and accessories in that vicinity.

The Shawmut Motor Company, of Boston, has established a New York salesroom at 1634 Broadway, with Geo. T. Gould as manager.

The Central Automobile Company, of Pittsburgh, Pa., has been appointed local distributer for the Moon, a 40-horsepower, four-cylinder car made in St. Louis.

The Grant Square Garage, 1378-1382 Bedford avenue, Brooklyn, has taken the Greater New York agency for the Moon car, made by the Moon Motor Car Company, of St. Louis.

The Franco-American Auto and Supply Company has opened up at 1404 Michigan avenue, Chicago, and is carrying a full line of accessories and supplies, including the famous Lacoste ignition specialties imported by Leon Rubay, New York. C. C. Boynton is secretary and general manager of the company.

The new Colonial Automobile Company, of Pittsburgh, Pa., has taken the agency of the Finch car, made by the Pungs-Finch Automobile Company, of Detroit. It is a water-cooled, four-cylinder touring car of two types, 32 and 22 horsepower.

Waldon W. Shaw has been appointed Chicago agent for the American Locomotive Company, at 1532 Michigan avenue. This is the only important agency that is not strictly run by the factory. B. C. Buxton, formerly with the Hamilton Automobile Company, will be associated with Mr. Shaw as manager.

With the Dorris, Duquesne, and Gale to draw to, the South Broad Auto Company, of 729 South Broad street, Philadelphia, has filled up by securing the local agency for the Duryea car, built at Reading, Pa. The comprehensiveness of this energetic company's combined line is such that the present showrooms and garage are inadequate to carry on its business, and architects are at work on plans for a considerable enlargement of its facilities.

PERSONAL TRADE MENTION.

A. W. Edwards has been appointed general sales manager for the St. Anne Kerosene Motor Company, of St. Anne, Ill.

S. D. Waldron, sales manager of the Packard Motor Car Company, of Detroit, was a trade visitor to Philadelphia last week.

The South Broad Automobile Company, of Philadelphia, which handles the Gale, Duquesne, Duryea, and Dorris cars, has secured L. M. McComb as manager.

Wayne Davis, an official of the Keystone Motor Car Company, of Philadelphia, will make a three weeks' tour of England, France, and Switzerland, leaving New York on the *Deutschland*, May 31.

The Keystone Motor Car Company, of Philadelphia, recently added to its corps of salesmen C. J. Trumbull, formerly of the Packard Motor Car Company, of Detroit. The Keystone concern handles the Packard in Philadelphia.

C. W. Frank has succeeded A. J. Crittenden as manager of the Washington Electric Vehicle Transportation Company, agents in Washington, D. C., of the Columbia gasoline and electric cars. Mr. Frank comes from San Francisco, where he was manager of the Pope branch prior to the earthquake.

Charles T. Allen, for many years connected with the pump industries of Battle Creek, has disposed of his holdings in the Union Steam Pump Company. Mr. Allen is recovering from a severe illness and will take a long rest. Catalogues and samples will reach him at 265 Maple street, Battle Creek, Mich.

George W. Dunham, who has succeeded H. E. Coffin as chief engineer of the Olds Motor Works, was in New York last week on business in reference to the Oldsmobile racer entered for the Vanderbilt cup. Mr. Dunham, who takes the place vacated by Mr. Coffin, has been the assistant of the latter for two years and the practical shop man of the engineering force. He is the designer of the two-cycle Olds model and has had charge of the practical work on the racer ever since the designs for it were completed and accepted. Mr. Dunham says that the designs for the 1907 models are already well in hand, and that they will be out early in the fall. He is a college-bred engineer, with six years of practical experience.

INFORMATION FOR BUYERS.

NEW TIRE REPAIR.—A method of repairing inner tubes without the use of rubber patches or rubber cement has been brought out by the Auto Goods Co., of 425 Butler Exchange, Providence, R. I., under the name of the "Cinch" tire repair outfit. The

INSERTING CINCH SEAL IN TUBE.

method of repairing a tube by this process is as follows: The puncture is enlarged by a special tool which makes a clean hole, and into the hole is inserted a "seal" like a double-headed rivet, a wire tool being used to stretch the rubber to admit the seal. The seal is then closed up by a pair of specially formed pliers and grips the rubber around the puncture. The accompanying illustrations will make the process clear. It is stated that the repair can be made in an

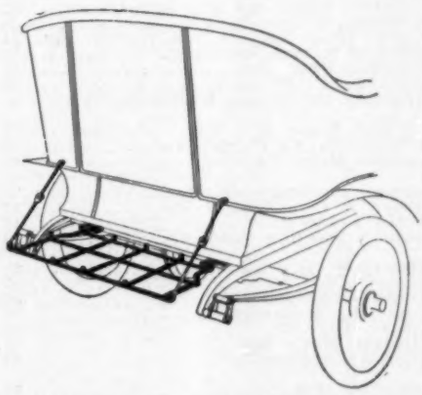
A FINISHED CINCH REPAIR.

exceedingly short time, and it has the advantage of being ready for use as soon as finished, there being no waiting for cement to dry.

CHELSEA CLOCKS.—A card illustrating and briefly describing a number of high-grade clocks for special service has been issued by the Chelsea Clock Co., of 16 State street, Boston, Mass. Included in the number is an automobile clock, designed for attachment to the dashboard. This clock has a locked case with the dial at an angle so as to be readily consulted by the driver. The clock can be removed from the dashboard case and placed on a mantel or elsewhere, having feet to stand on. Special clocks are also made for autoboats, all having the Chelsea marine movement.

POWER TIRE PUMP.—An air pump and fittings designed to keep a punctured tire inflated while the car is running has been placed on the market by the Tiley-Pratt Company, of Essex, Conn. The apparatus consists of a double-cylinder piston pump which is attached to some part of the car near the motor and is driven by sprocket and chain; a rubber tube leads from the pump to a revolving connection on the hub, and from this another tube leads to the tire valve. By means of a clutch the pump can be started or stopped at any time. The mode of operation, when a tire is punctured on the road, is to attach the hub coupling and connect up the tubes and, after pumping up the tire, keep the pump going fast enough to make up for the air lost through the puncture while the car is running. An air gauge, placed where the driver can see it, keeps him informed as to the pressure in the tire, and the manufacturers state that cars have been run hundreds of miles with air leaking out of a tire almost as fast as the pump could force it in. For pumping up a tire while the car is standing the hub connection is not necessary, the tube being attached direct to the valve. The device can be attached to any car without difficulty. In the case of a runabout with engine in the body it is placed under the seat. The manufacturers' representatives for Maine, New Hampshire and Vermont are the H. Keno Marble Company, of 115 Massachusetts avenue, Boston, Mass.

AUTOMOBILE TRUNK RACK.—Trunk racks for automobiles of any make or model are manufactured by the Connecticut Steel &



STEEL TRUNK RACK ATTACHED.

Wire Company, of 308 Pearl street, Hartford, Conn. These racks are of steel and are finished in black enamel. The braces are fitted with knuckle joints so that when the rack is not in use it can be folded up against the back of the body, out of the way.

METAL MONOGRAMS.—Many automobilists who take a pride in the appearance of their machines like to have their monograms on the panels of some part of the car. A concern that caters specially to this class of trade is John A. Salman & Co., of Room 404, 21 Bromfield street, Boston, Mass. This firm makes all kinds of ornamental lettering, such as inlaid work, engraved name

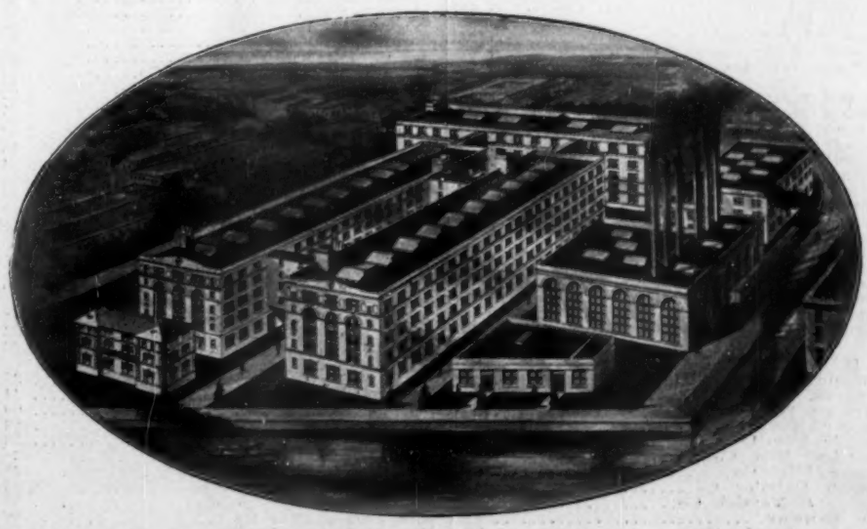
A SAMPLE SALMAN MONOGRAM.

plates and so on, but its specialty is monograms, made in any metal.

AUTOMOBILE TRUNKS.—A catalogue that should be of special interest to automobilists now that the touring season has opened is issued by W. W. Winship, of 71 Summer street, Boston, Mass. In this catalogue are listed special trunks for a number of the leading models of automobiles, as well as some trunks that can be used in almost any car. On long tours a trunk is often a very great convenience, saving the necessity for sending baggage by rail and enabling the tourist to have his belongings at hand, no matter what emergency may arise. The same manufacturer also makes picnic and lunch baskets for automobile and general use, and these also are made in a variety of sizes and styles and fitted up with everything necessary for a comfortable lunch—except the lunch.

A GREAT TIRE MANUFACTORY.

An interesting move in the automobile world is the acquisition by Morgan & Wright, of Chicago, of the buildings formerly occupied by the Olds Motor Works in Detroit, Mich. The buildings, which are very large, have been turned into a rubber works by the tire manufacturers. The main buildings are five stories high, 60 feet wide and 300 feet deep; in addition to the main buildings there are wings and detached buildings containing the hard rubber department, machine shops, cement shop and so on. The power plant is particularly interesting; it consists of ten vertical boilers of 300 horsepower capacity each, and two 1,500-horsepower cross-compound Corliss engines, which can be connected together or used separately. The rope-drive system of power transmission is used.



BIRD'S EYE VIEW OF MORGAN & WRIGHT'S NEW FACTORY AT DETROIT, MICH.

INDEX TO ADVERTISERS